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ABSTRACT

Work continues on the development and expansion of the Instructional Support System for Occupational Education (ISSOE) in New York State, a system which is competency-based, teacher generated, and modular. Through a statewide network of participating agencies, the ISSOE development process had produced materials in a standard format in eight occupational programs. These materials include a complete content outline with major units which contain modules. All of the materials have been developed in a competency-based format and represent the entry-level job requirements for the particular cluster of jobs associated with the program. Nearly 800 teachers are participating in the development process which begins with a preparatory summer workshop followed by materials development during the school year. In the second year materials are critiqued, revised, and validated by regional industry and business groups, after which teachers fuse materials into existing programs. Preliminary work has begun on a student reporting system which will provide both student progress monitoring and employability profiles (conceptual design and pilot test report appended). Continuing adjustments and refinements have been made in the roles and responsibilities of the various participants to respond to the needs of implementing a complex system of instructional change. (PV)

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Final Report

Project No. 498AH60057
Grant No. G007503981

Instructional Support System for Occupational Education

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New York State Education Department
Division of Occupational and Continuing Education

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AUTHOR'S ABSTRACT

Work completed under this grant continued development of an Instructional Support System for Occupational Education (ISSOE) in New York. It extends work on occupational programs, which are competency-based, teacher generated and modularized. Through a state-wide network of participating agencies, a materials development process has been designed and implemented. This process places a high priority on extensively involving teachers in identifying entry-level work tasks, instructional objectives and criterion-referenced measures. To date, eight occupational programs have been developed. These included:

- Automotive Mechanics
- Building Industries Occupations
- Carpentry
- Conservation
- Foods
- General Merchandise/Retailing
- Health Assisting
- Office Training

The development process begins with a preparatory summer workshop, which is followed by materials development during the following school year. During the second year, materials are critiqued, revised and validated by regional industry and business groups. Implementation takes place as teachers feel the materials are ready to be infused in their existing programs. Preliminary work has begun on a student reporting system which will provide both student progress monitoring and employability profiles.

Nearly 800 teachers are participating in the development process. They are assisted by Regional Coordinators, teacher education institutions, occupational education research institutes and various units in the State Education Department. Continuing adjustments and refinements have been made in the roles and responsibilities of the various participants to respond to the needs of implementing a complex system of instructional change.

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INTRODUCTION

The New York State Office of Occupational and Continuing Education initiated development of a modularized, competency based curriculum for occupational education in 1974. The Instructional Support System in Occupational Education (ISSOE) is a major part of a total state system entitled a Comprehensive Management System for Occupational Education (CIMS/OE). The ISSOE system is intended to provide occupational education teachers in New York with teacher-generated, student-centered, competency based materials. The system also intends to provide a means to monitor student progress toward achievement of entry level job skills, which have been validated by industry. Through establishment of an instructional support system, teachers and program administrators will be able to strengthen instructional programs through more systematic management processes.

The ISSOE system is viewed as a vehicle by which comprehensive changes can be introduced into various aspects of the occupational education delivery system in New York. Since it is a comprehensive system which intends to impact all occupational programs and teachers in the state, it must be one which is developed over an extended period of time. In the process of this development, numerous components of the system must be designed, tested, revised and refined. While the primary initiative for the total effort comes from the State Education Department, the system is really a product of the cooperative participation of teachers, administrators, teacher education institutions and research institutes. Basic to ISSOE is the realization that commitment to change only emerges from complete involvement in the process of designing the change. ISSOE is, therefore, not a system which is designed external to the delivery system and imposed on it. ISSOE is both the process and product by which substantive changes will improve the total occupational education instructional program in New York.

Through previous federal support, the basic outline and principles for ISSOE were established. Teachers in two program areas in pilot regions of the state, participated in development of a system format which organized the program content into modules. The teachers were assisted in their efforts by local administrative support and research agencies. The activities which will be described in this report, provide a chronicle of the second major phase of development of ISSOE. During this phase, a number of important extensions and refinements have been made on the prototype process and model which was previously developed.

Although the 18 month period which is reported here appears to be finite, it should be remembered that it is only one segment of a continuous development process. During this reporting period, the number of agencies participating in the ISSOE process were substantially expanded. This Partnership Network broadened the support base for ISSOE, both geographically and operationally. Each group provided a unique contribution and was linked to ISSOE through assigned responsibilities consistent with their existing activities. Teacher participants continued their previous role in the development of ISSOE through improved workshop preparation in curriculum and instructional management development. They were assisted on a continuing basis in their regions through field support and direction. The curriculum development model was used to develop additional program areas, so that by 1977-78 eight programs were at various stages of development. Modest progress was made on development of a student reporting system. It was clear, however, that the reporting system was one of the more complex aspects of ISSOE, and would require further design and refinement. Perhaps the most dramatic change was seen in the growth of numbers of teacher participants and geographic participation across New York. All of these events will be more fully described in this report.

This report follows the format of the proposal and describes activities under the major objectives designated for the reporting period. The sections describe the specific methods that were used to achieve the objectives, the results of the procedures used and the conclusions reached. There is a set of summary conclusions which draw the more important outcomes together and relate them to the ongoing developmental work on ISSOE. As this report is reviewed, one should try to view the activities described as components in a comprehensive process of change in occupational education instruction in New York, and not only as finite tasks isolated from a set of continuing processes.

OBJECTIVE 1

UTILIZING THE PARTNERSHIP MODEL DEVELOPED THROUGH THE FY '74 FEDERAL GRANT, NEW MEMBERS WILL BE INCLUDED IN THE CURRICULUM PROCESS AND PRODUCTS NETWORK.

PROCEDURE

The Network of Partnership Agencies has been greatly expanded during the period covered by this report. Based on the initial work of the Task Force, the administrative staff of the ISSOE project in the State Education Department identified and negotiated with numerous SED bureaus, resource institutions and local education agencies in the occupational education planning regions. Administrators of the ISSOE project consulted extensively with local occupational education administrators and the District Superintendents of BOCES in those regions of the state where ISSOE activities had not been initiated.

RESULTS

By the end of the reporting period for this grant, a comprehensive group of local and intermediate education agencies, resource institutions and the State Education Department units had agreed to participate in the ISSOE project. This group represents a continuum of agencies and institutions from the local level, where programs are provided for occupational students in individual schools or area occupational centers, to the overall administrative direction of the State Education Department. The total list of Partnership Agencies is shown in Appendix A. The participating groups have been included in ISSOE because of the unique contributing resources they brought to the project, and since they represent components in a total state delivery system for occupational education.

CONCLUSIONS

Since ISSOE is viewed as a necessary component of a comprehensive management system which integrates numerous aspects of occupational education programs, it is clear that resources must involve various institutional participants. The greatest support for participation in ISSOE has come from teachers. While there

are some teachers who are skeptical that ISSOE is just another academic exercise, the opportunity to help formulate program objectives in cooperation with peers across the state, has motivated high levels of involvement. This response is particularly encouraging since elements of change are implicitly framed in the ISSOE process. As teachers have gotten more deeply involved with the design of the ISSOE materials, they have recognized that the ISSOE framework: a) is less threatening than they imagined, b) recognizes their professional expertise in developing structured materials, c) provides them with an organizing structure into which they could fit many of their existing instructional activities, and d) provides a positive working relationship with peers involved in developing a consensus among teachers across the state.

Local administrators have supported their institutional involvement in ISSOE on a regional basis. While there has been caution demonstrated as with any new venture, there has been clear recognition of the benefits to teachers. This is particularly important since teacher participation in ISSOE has created some normal stresses on local administrative decision-making. It is apparent that local administrators see the potential value of ISSOE in terms of more systematic identification of student achievement. This is particularly important in terms of state and federal concerns with program effectiveness.

Participation by post-secondary institutions, while limited in numbers, has been totally supportive. In the early stages, occupational education research institutions were deeply involved in the design and management of the overall project. Their role has recently shifted to one of longer range research and development, more consistent with their strengths. The ISSOE project benefitted from their expertise and provided the institutions with opportunities to participate directly in institutional change processes in occupational education. Teacher education institutions, the most recent participants in ISSOE, contribute their unique resource strengths and also benefit through participation in field assistance on an area basis to Regional Coordinators and teachers involved in developing ISSOE. ISSOE provides them with parallel activities which reinforce their own competency-based teacher education programs, and demonstrates the type of competency based programs their students will have to understand and implement.

During the early years of ISSOE, much of the design and early field testing was directed by research institutions. While the State Education Department provided overall guidance and supervision of the project, there was not extensive participation by the numerous operating units related to the content areas of ISSOE. There has been a natural caution on the part of those who have felt that they did not have absolute control over the direction of ISSOE. This caution was reinforced by the decision to rely heavily on teachers to generate materials, which had previously been developed by the State Education Department.

With the ISSOE process now finally established as a field centered system, units in the Education Department are becoming more substantively involved. Their role, however, is being revised from the traditional center of power to one of shared responsibility with other Partnership Agencies. The shift of power away from the State Education Department has created some tensions, but these are leading to positive outcomes and progress towards recognition of a true partnership among the numerous contributors to the ISSOE system.

OBJECTIVE 2

CLARIFICATION OF DISTINCT AND OVERLAPPING RESPONSIBILITIES OF MAJOR PARTNERSHIP AGENCIES IN THE ISSOE SYSTEM.

PROCEDURE

Specification and refinement of the roles and responsibilities of the Partnership Agencies has been based on three procedures. From the experience of the first full year of operation, important insights were identified in the ISSOE project. These findings were responsible for separate management responses. Refinements were made in the existing management system for ISSOE. These corrections caused elimination of some activities, continuation of others, and expansion of still others. It was apparent that there were needs of the various Partnership Agencies that had not been identified during the design of the overall ISSOE concept. These newly identified needs were factored into revisions in the management system. The third set of Partnership Agencies was based on conceptual analysis and research findings on the management of large scale organizations.

While the majority of improvement came from direct experience in managing the ISSOE project, it has become apparent that there is additional value in review of experience of major large scale R and D project implementation. It appears that this area is one which should be expanded in the future. It is apparent from the literature on management considerations that these can either materially aid or substantially deter project implementation.

Communications were identified early as an area of great need. With the increasing number of participants identified under Objective 1, the need has not lessened. Various existing communication systems were reviewed by the ISSOE management staff, and numerous other suggestions and observed communication systems, decisions concerning communication procedures were made by the ISSOE management staff. At the regional and area level, supplementary communication systems were also discussed, and each region and area have made selections of other approaches to complement those systems established on a statewide basis.

RESULTS

Appendix B provides the revised and amended roles and responsibilities of the major participant groups in the ISSOE project. These include:

Teachers Participating in ISSOE
ISSOE Regional Coordinators
Area Facilitators
State Education Department Units

These roles and responsibilities have been included in relevant documents which govern implementation of ISSOE across New York. All proposals from LEAs incorporate these as part of the contractual agreements of the way in which ISSOE will be implemented at the regional level. In addition, specific external support resources help implement ISSOE at the area level. While the major responsibility for coordinating development and implementation of ISSOE at the regional level falls to the ISSOE Regional Coordinators, continuing interchange of information and accessible resources facilitate their work.

At the regional level, groups of teachers in the selected program areas meet throughout the school year. These meetings are organized and structured by the ISSOE Regional Coordinators. During the first year of development of the ISSOE materials, teachers follow procedures described in Appendix C. This development process provides excellent opportunities for discussion among teachers in the same region while they are developing the materials. While there is often disagreement on substantive issues, the forum provided by these regional meetings creates an exciting environment for teachers, and has helped build the necessary commitment to the ISSOE products and process.

The ISSOE Regional Coordinators are provided with a range of resources through the Partnership Agencies. The Coordinators define the needs of their various ISSOE participants and contact their Area Facilitator or the ISSOE Coordinators in the State Education Department for the appropriate response. Periodic meetings of the Coordinators at the area and state level provided an opportunity for an interchange of ideas, experiences, problems and solutions and other information. In addition, there are almost daily communications by letter or telephone, and in instances where an immediate response is needed, materials are transmitted by telephonic reproduction using the state network of telephonic copiers in most of the BOCES. During the 1976-77 school year, a newsletter was

begun and plans are being developed to circulate an ISSOE newsletter to all ISSOE participants during 1977-78. ISSOE Regional Coordinators provide the State Education Department with monthly reports and the Area Facilitators bi-monthly reports for management monitoring on an ongoing basis. These reports provide a formal record of continuing needs at the regional level, and assure that problems and opportunities are identified and responded to.

All of these materials create an atmosphere of extensive open communication among all of the ISSOE Partnership Agencies. Many of the more recent efforts in the area of communication were prompted by a management evaluation, Appendix D, which was carried out at the end of the 1976-77 school year. This evaluation recommended some improvements in communications, and made recommendations concerning overall management of the ISSOE system. The majority of the recommendations have been implemented.

CONCLUSIONS

The steps taken to develop a clear understanding of the roles and responsibilities of all participants in the ISSOE system have been absolutely necessary. While ISSOE is a statewide project, its strength lies in the fact that it meets primarily local teacher needs. It is imperative that certain principles established for statewide application are agreed to by local administrators. By incorporating these roles and responsibilities into formal funding documents, possible conflict of the perceived roles between local agencies and the state is minimized.

It is likely that the present set of roles and responsibilities will continue to undergo refinement over time. While there have already been some changes, these have tended to be minor. The major responsibilities of the Partnership Agencies seem to be well formulated. Since they are explicit, potential disagreements have been kept to a minimum.

The communications structures, which have been established for ISSOE, have been actively used. While it could be argued that some of the systems are to a degree redundant, the management evaluation study stressed the need for continuing improvement. With a system as far reaching and complex as ISSOE, it would be very easy to either move toward central domination by the State Education Department, or go to the other extreme of having such a loose federation of regional activities, that statewide consensus would be impossible. The existing communication system does attempt to strike a balance between

these two extremes - allowing for ample regional and area autonomy while still maintaining a sense of statewide common purpose.

The project staff at all levels have tried to minimize paper flows and maximize speed and efficiency of decisions through telephone communications. This balance has worked well, especially after face to face contact has been established, roles defined and individuals encouraged to make specific needs known as soon as possible. There are, of course, personal variations among individual participants in ISSOE. While there are minimum monitoring and communication levels required by the State Education Department, some individuals desire activity well beyond the minimum. The ISSOE staff has tried to respond to variations between different individuals and accommodate to the level of interaction desired by the regional and area participants. It is expected that this model, which has proved successful, will continue to be used with refinement and revisions made as they are needed.

OBJECTIVE 3

- A. THE CADRE OF TEACHERS TRAINED THROUGH THE FY '74 PROJECT WILL CONTINUE TRAINING AND REFINEMENT RELATED TO CURRICULUM PRODUCTS AND IMPLEMENTATION OF THESE PRODUCTS ON AN INDIVIDUALIZED BASIS FOR THE TWO PROGRAM CLUSTER AREAS.
- B. CURRICULUM PRODUCED TO DATE WILL BE TRANSPORTED TO ADDITIONAL TEACHERS ON A STATEWIDE BASIS IN THE AREAS OF AUTO MECHANICS AND OFFICE CLERICAL. ORIENTATION WILL BE PROVIDED TO ACQUAINT TEACHERS WITH THE USE AND BENEFITS OF THE INSTRUCTIONAL SUPPORT SYSTEM.

PROCEDURE

During the 1976-77 school year, two groups of teachers worked on the development of ISSOE materials. The first group had been involved with developing the auto mechanics and office practice programs during 1975-76. This group included those who had worked on the first year of development, augmented by teachers who had not participated in the first year. During 1976-77, the materials were further refined and revised based on group critiques. At the same time, the materials were being used by teachers in their instructional programs. These pilot applications provided experience which guided revisions in the materials. The materials were also reviewed by industry representatives on a selected basis in order to test an industry validation process.

The second group of teachers attended a three week summer workshop, which provided pre-service experience in the ISSOE process. During the workshop, they began to develop materials in two new program areas - Building Industries and Commercial Foods. At the beginning of the 1976-77 school year, additional teachers joined with those who had already been involved in the summer workshop in each region that had selected the new program areas. This combined group of teachers continued development of the ISSOE materials throughout the school year. By the end of the school year, catalogs of competency based modules and criterion referenced measures had been developed in four subject areas. These materials were reproduced in quantity and made available for further implementation, refinement and revision during 1977-78.

RESULTS

During this report period, ISSOE participants began to expand their classroom management skills. The summer workshop provided a substantial introduction to various aspects of the total management system.

The major work activities of the summer workshop included development of a content outline of the program area, major and enabling objectives and criterion referenced measures for the modules. These activities were entirely new for many of the teachers and represented their first experience in thinking of their courses and programs in systematic management terms. The summer workshop also provided a brief introduction to other aspects of the total management system. While there was little time for in-depth work on these other topics, the comprehensive ISSOE system was introduced.

During the 1976-77 school year, the Cornell Institute for Occupational Education (CIOE) and the Institute for Research and Development in Occupational Education (IRDOE) of the City University of New York (CUNY) provided regional on-site assistance to the groups of ISSOE participants who were continuing the development and critique work. Additional in-service training was provided to the teachers. It was apparent, however, that the development work did not progress as rapidly as expected, and many of the related management elements of the total ISSOE management system were not considered. Some of these elements did come up in the course of development work at the regional level and were discussed on an individual basis. The greater attention and added time required by continuing development and critique work on ISSOE materials precluded systematic in-service training in all aspects of the ISSOE system.

During the fall of 1977, steps have been taken to strengthen the in-service portions of the ISSOE system for both the ISSOE participants and ISSOE Regional Coordinators. The three teacher education institutions have replaced the research institutes as primary providers of assistance to Regional Coordinators and ISSOE participants. Staff from these institutions, designated as Area Facilitators, have planned in-service workshops for Regional Coordinators and have responded to ad hoc teachers' needs by providing workshops, materials or other appropriate responses. These responses may be provided by any of the Partnership Agencies previously identified, depending on where the relevant response is available.

Additional development or refinement work is still occurring on some management aspects of the ISSOE system. These changes will be infused into the in-service training process as results become available. Revisions include redesign of the student reporting system based on pilot works from 1976-77, comparative validation procedures, expansion and refinement of criterion-referenced measures, class and local administrative strategies, and a comprehensive formative and summative evaluation system which is both process and product oriented.

The greatest success during the period of this report came from the active involvement of numerous occupational education teachers in various regions of the state. Through continuing participation in regional meetings with other teachers in their program area, strong professional bonds were built. More importantly, pride of ownership was developed towards the ISSOE materials which they as teachers had developed, used in classes, critiqued and refined. Through the work of CIOE and IRDOE, products of the regional groups of teachers were circulated among other subject teachers across the state. It is evident that a cadre of subject teachers, identified by their active participation and deeply committed to the ISSOE system, is enlarging across the state. In Nassau County and the Rochester City area, these teachers are being used as group leaders by the Regional Coordinators. It is expected that this approach will continue, and may become a major element in further efforts to expand the number of participants in ISSOE and strengthen acceptance and commitment of other teachers to the ISSOE system.

CONCLUSIONS

Experience during the 1976-77 school year demonstrated the ability to bring groups of occupational education teachers together for short, intensive training on curriculum development procedures and instructional management. The summer workshop provided selected teachers with basic skills which helped establish a working nucleus for other teachers in their home regions during the school year. With in-service assistance from the CIOE and the IRDOE the teachers continued development of materials in the ISSOE format in Commercial Foods and Building Industries. In the course of one year, the regional teacher groups were able to develop the tasks, objectives and criterion referenced measures for the modules. These were synthesized into a set of common materials available for geographic expansion and review, implementation, critiquing and revision during the following year.

The ISSOE Regional Coordinators, who worked for LEAs in each of the regions, demonstrated the ability to identify, recruit and organize groups of teachers from area vocational centers and component school districts. The groups of teachers have experienced professional growth through interchange with peers in their region and by receiving materials developed by teachers in other regions across the state. The groups of teachers have been able to design basic curriculum materials, critique the materials and revise them based on classroom use. Teachers have become aware of the difficulty of preparing materials and profited in their own growth. Teachers have a strong commitment to the materials because of their involvement in the development process. Even though some of the materials may not presently meet the standards of "professional" curriculum developers, they are being used by teachers, who feel that they assist them in their classroom instruction.

While the processes of classroom management and individualization of instruction are key elements of the more advanced stages of the ISSOE process, all teachers working with ISSOE have not instituted these procedures. An example of one teacher developed management system is shown in Appendix E. Teachers who have been involved with ISSOE for the longest time, have designed such systems on an individual basis. During future stages of ISSOE development, additional attention will be given to these areas, and teacher and research generated models will be designed, evaluated and provided for more general implementation.

OBJECTIVE 4

- A. DEVELOPMENT OF PERFORMANCE-BASED OCCUPATIONAL EDUCATION MODULES OF INSTRUCTION BY MEANS OF THE ESTABLISHED, WORKABLE MODEL.
- B. VALIDATION OF THAT MODULARIZED CURRICULUM BY REPRESENTATIVES OF THE JOB MARKET AND THROUGH OCCUPATIONAL EDUCATION DATA STUDIES.
- C. NEEDS OF INDIVIDUALS WILL BE PROVIDED FOR THROUGH MODULARIZED CURRICULUM TOOLS.

PROCEDURE

Through a combination of summer workshops and regional meetings during the following school year, groups of teachers across New York have developed modularized, performance-based occupational education materials. A format and glossary for these materials was developed by the CIOE. This format, (Appendix F) provided a standardized structure for all the program areas developed to date. The summer workshops provided participants with orientation and a working familiarity with the format, which included major units of the particular program and specific modules within those units. Once the content outline was agreed upon, detailed development work began on specific modules. This included identification of specific work tasks, major and enabling objectives and related criterion-referenced measures. Work begun during the summer workshops provide the base for continuing development in the regions throughout the rest of the school year. Materials produced in separate regions were submitted to the CIOE and the IRDOE at the end of the school year. These institutions synthesized the materials and reproduced copies for distribution for the following school year.

In order to validate materials developed during this period, there was a statewide meeting at which industry representatives reviewed materials developed in auto mechanics. This statewide pilot effort was supplemented by ad hoc regional validations by local advisory and craft committees. The results of the effort are shown in Appendix G. Development of the materials took longer than expected, and as a result, validation

efforts during 1976-77 were modest in comparison with expectations. The experience gained has contributed substantially to the revised validation process which is being implemented during 1977-78.

RESULTS

At the beginning of the period covered by this project, two program areas had been developed through the previously described process. Automobile Mechanics and Office Training were initiated in the 1975 summer workshop. These materials had been further developed during the 1975-76 school year, and by the beginning of this project, were ready for synthesis and duplication. A summer workshop was conducted by the CIOE to prepare a new group of teachers for refinement, critiquing, implementation and further development of these materials. The CIOE provided extensive support for the second development phase of these materials in 1976-77. At the end of the school year, the revisions were incorporated in existing materials, and another set of materials were reproduced. While these materials represented refinements of the first year's work, it was felt that additional teachers should participate during the third year, to continue refinement of the materials for classroom use, analysis and revision. These materials have been made available to new participating regions for the 1977-78 school year. Any revisions will be incorporated into the next generation of the Automotive Mechanics and Office Training programs.

During the summer of 1976, another workshop was conducted by the CIOE and the IRDOE (Appendix H). At this workshop, teachers were prepared for the first phase of developing two new programs - Building Construction Occupations and Commercial Foods. The work completed during the summer was taken back to the various participating regions, and additional teachers continued development of these two programs during 1976-77. At the end of the school year, the materials were synthesized and reproduced by the CIOE and the IRDOE for further distribution for the 1977-78 cycle.

During the summer of 1977, another workshop was sponsored jointly by the CIOE and IRDOE. This workshop (Appendix I) provided an opportunity to develop four new program areas - Carpentry, Conservation, General Retailing and Health Assisting. The same process was

followed as in previous years. Because of previous experience, the teachers were able to accelerate their work, and the preliminary materials were more fully developed than in previous years. As before, the products of the summer workshop were reproduced in quantity, and have provided the basis for continuing development during 1977-78.

The status of the eight program areas under development through ISSOE are shown in the following chart.

ISSOE DEVELOPMENT OF NEW PROGRAMS

Program Area	1975	1976	1977	1978
Auto Mechanics	I D*****C*****R*****			
Office Training	I D*****C*****R*****			
Building Construction		I D*****C*****		
Commercial Foods		I D*****C*****		
Carpentry			I D*****	
Conservation			I D*****	
General Retailing			I D*****	
Health Assisting			I D*****	

KEY

I = Initiate
D = Develop
C = Critique
R = Refinement

The flexible format of the ISSOE materials has been able to provide the basic structure for all of the program areas. While there are variations in the content, the framework has demonstrated its adaptability to local teaching needs. While evidence has not been

systematically gathered, Regional Coordinators report that teachers find the material can be introduced into their existing courses, can be substituted for existing courses, and can be used in either group or individualized instruction. While adaptation for the handicapped, bilingual and other special groups has not occurred yet, it is expected that this will emerge after teachers are more familiar with the materials.

CONCLUSIONS

The growth of the ISSOE process to date has demonstrated that classroom teachers can, with guidance and assistance, develop competency-based materials in vocational education. These materials, which may lack some of the sophistication of more professionally developed curriculum materials, are being used by teachers to help them orient their instruction towards relevant occupational competencies. This aspect of ISSOE is perhaps one of the most positive outcomes to date. It appears that by deeply involving teachers in the development process, they build commitment and ownership through their involvement. In contrast with the experience with many professionally prepared curriculum materials which are not used by teachers, the ISSOE materials are being used. The general format, developed in the early stages of ISSOE, has proved to be completely adaptable to the program areas developed to date. While there have been numerous questions raised concerning interpretation of terminology in specific instances, these have not deterred continued use of the basic format.

The development process of the eight program areas of ISSOE has proceeded generally on schedule. Some of the desired refinements, including validation procedures and systematic refinements for special groups, have not progressed as rapidly as anticipated. There have been pilot efforts to expand in these areas, but only on a selected individual basis rather than through a systematic statewide approach. The continued expansion of ISSOE demonstrates that the basic structure of the materials can serve broad audiences of occupational education teachers and administrators across a populous state.

Although the development process has depended on decentralized groups of teachers, the synthesized materials show that this approach is feasible. The materials have gone through several revisions, and will continue to be revised as changes occur in the competencies needed

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in specific occupations. Teachers have also made modifications on particular modules to incorporate unique local conditions. This aspect has been particularly commended by teachers. Where major issues have been raised regarding either content or format, these have been worked out jointly between teachers and support agencies through the Regional Coordinators. What has become apparent as the numbers of Partnership Agencies has grown, and more issues have been raised, is the continuing need for more thorough, systematic communication flows. This is particularly true where interpretation and revision is occurring on a day to day basis. During the next stage, it is expected that steps will be taken to improve this area.

Validation of the materials to ensure that they represent entry-level competencies required by business and industry has been demonstrated on a pilot basis. It is clear that continuing processes for systematic validation of newly generated ISSOE materials will be needed. Based on the pilot efforts, three validation approaches have been designed and are being tested. These include review by a statewide panel, comparison with existing validated materials and regional validation through special regional industry groups. In the pilot tests, it was evident that business and industry were interested in participating in the validation process, and were impressed by the efforts of the vocational education community to make its instructional program consistent with the competencies needed in the world-of-work. This process has provided numerous positive benefits between education and industry and will continue to do so as the regional validation efforts become more prominent.

Teachers have continually stressed their appreciation for the flexibility which has been provided by the ISSOE materials and the way in which they are developed. Their students respond positively to the ISSOE materials, particularly when each student is provided with the same materials the teachers have. In this way, the students know exactly what must be accomplished, the conditions under which it must be accomplished, and the criteria by which that accomplishment will be judged. The explicit quality of the ISSOE material takes the mysticism out of what teachers expect, and provides one common standard which both students and teachers can understand.

OBJECTIVE 5

- A. MEASUREMENT OF THE RESULTS AND EFFECTIVENESS OF THE MODULARIZED CURRICULUM TOOLS OF INSTRUCTION IN TERMS OF STUDENT PERFORMANCE.
- B. DEVELOPMENT OF STUDENT ACHIEVEMENT PROFILES, WHICH CAN BE UTILIZED FOR ANY OR ALL OF THE FOLLOWING PURPOSES:
 - A. DIAGNOSTIC TOOLS
 - B. GUIDES TO PRESCRIPTIVE ACTIVITIES
 - C. SELF-KNOWLEDGE DEVICES
 - D. BASIS OF REPORTS TO PARENTS
 - E. EMPLOYABILITY PROFILES
 - F. ARTICULATORY TOOLS

PROCEDURES

Within the modular format of the ISSOE materials which have been developed to date, one of the major elements is the criterion referenced measures (CRMs). These measures are developed by teachers as part of the ISSOE development process. They provide the basis on which to determine whether a student has mastered a particular competence or not. Teachers have been introduced to procedures for writing CRMs at summer workshops and during regional work sessions.

The CRMs, which relate to each of the major objectives, provide the basis for evaluation for instructional and administrative purposes. During the period of this project, a preliminary design for a student reporting system for ISSOE was developed by the CIOE. This design was tested on a pilot basis to demonstrate its usefulness and suggest areas for revision. Funding and time limitations precluded more advanced work on the proposal. Individual teachers who have been working with ISSOE since the beginning, have taken the initiative to develop their own reporting systems for their own use. In some instances, the ISSOE measures were merged into existing institutional reporting systems. All of these separate efforts will form the basis for a more complete state-wide system which will be available to all those using ISSOE.

RESULTS

Each of the modules in the eight program areas developed through ISSOE, contain explicit criterion-referenced measures. There is a CRM for each major objective. Teachers have been using the CRMs to determine if students have achieved the particular competency at the stated criterion level and under the stipulated conditions. These results are being used to report individual and class progress in both existing institutional reporting formats, and in limited instances, in reporting formats developed locally by some teachers. The computer based reporting system which was tested on a pilot basis (Appendix J) has not been continued, since a more complete system is presently under extended development. Student Employability Profiles have also been generated and examples of these are shown in Appendix K. A more completed discussion of the reporting system and issues related to it was provided by the CIOE (Appendix L).

Related to the ISSOE reporting system is the Occupational Education Reporting System (OERS) and the Occupational Education Data System (OEDS). These systems are presently being developed by the State Education Department and an external contractor. The purpose of these systems will be to provide aggregated data suitable for federal and state reporting purposes. The work of the contractor developing these systems is being closely monitored, and the ISSOE reporting system will be designed to be fully integrated with these systems and non-duplicative of the data collected. Since the ISSOE reporting system will be designed to serve students, teachers, employers, guidance personnel and local administrators, it is expected that the final data collected will reflect more local than state or federal concerns, and will be fully supported since it will reflect local reporting needs.

CONCLUSIONS

The development of CRMs has proven to be one of the most difficult tasks for teachers participating in the development of the ISSOE materials. It is apparent from a review of the materials, that the design of CRMs are still not sufficiently precise and do not include the requisite conditions and criteria in all instances.

This probably relates to the desire of teachers to leave the evaluation of a student's competency to teacher judgement. As the ISSOE materials are refined, it is hoped that personal judgements will be replaced by more precise objective measures. In order to improve the quality of the criterion-referenced measures, special in-service workshops on the design of CRMs were held. In addition, more complete written guidelines are being developed by the IRDOE to help teachers better understand the technical requirements of CRMs.

Several years ago, New York had developed an occupational education reporting system. A number of difficulties had been encountered in establishing this system, which was then terminated. This experience has left an atmosphere of apprehension and reluctance to participate in new reporting systems on the part of local teachers and administrators. In order to overcome this unique statewide problem, and because of the reduced funding available, the project managers have made a conscious decision to proceed more cautiously toward the development of the student reporting system. Reviews of reporting systems developed in other sites reinforced a "go slow" policy. A common theme which has been identified in successful reporting systems, is that users must feel that the outputs of the system warrant the input effort. A corollary is that the system should produce information which is usable for very practical purposes. The student reporting system will, therefore, be first designed for manual operation by teachers and administrators. After a thorough testing period, it will be translated into a machine based system. The system design will be based on the designs that some teachers have already developed, and the pilot work previously mentioned. The design of the system began late in the reporting period, and will be ready for field testing in the fall of 1978.

OBJECTIVE 6

- A. IDENTIFICATION AND PRIORITIZATION OF NEW CURRICULUM AREAS OF INSTRUCTION WHICH LEND THEMSELVES TO MODULARIZED DEVELOPMENT AT THIS TIME IN LIGHT OF CURRENT AND PROJECTED JOB MARKET FORECASTS.
- B. RECOMMENDATION OF THE MOST FEASIBLE REGIONAL AND LOCAL SITES FOR PROJECT IMPLEMENTATION WHICH SHOULD BE INCLUDED IN PHASE TWO DEVELOPMENT OF MODULARIZED CURRICULUM.
- C. RECOMMENDATION OF SITES WHICH SHOULD BE RECIPIENTS OF CURRICULUM PRODUCTS ALREADY COMPLETED.
- D. UTILIZATION OF INFORMATION GATHERED AT THIS TIME TO MAKE A TENTATIVE PROJECTION PLAN FOR THE NEXT THREE TO FIVE-YEAR STATEWIDE SATURATION PROCESS.
- E. RECOMMENDATIONS FOR CHANGE OR ADJUSTMENT AS THE PROJECT DEVELOPS THROUGHOUT THE 1976-78 TERM.

PROCEDURES

The continued program and location expansion and growth of ISSOE has been determined by formal and informal consultation with members of the Partnership Agencies and local occupational education administrators. Early in this reporting period, a formal Task Force initiated planning for future expansion. The Task Force was composed of members of the State Education Department. As the Partnership Agencies from across the state were added, decisions concerning expansion became more broadly based. The recommendations of the Task Force were supplemented by solicited contributions from the Partnership Agencies. This process of diversified input for decision making has created positive response from the numerous participants.

Presentations were made to numerous meetings of school superintendents, occupational education directors, occupational education teachers and others involved with occupational education in New York State. These presentations usually included an invitation to provide reactions and suggestions concerning future growth and expansion of ISSOE, in both geographic and program terms. Presentations to statewide meetings often resulted in specific

requests for follow-up information and additional local meetings where specific conditions could be considered. The informal professional network of those involved in occupational education generated further guidance for the State Education Department. Peer contact among teachers and administrators led to further requests for involvement in ISSOE. Contact at professional meetings, regional meetings, workshops and local visitations, have produced further input for program decisions.

The field input has been substantially augmented by involvement of units within the State Education Department. A conscious decision was made to involve all instructional bureaus in at least one program, although the predominant number of programs were within the Trade and Industry Bureau. Further guidance for program selection was provided by identifying those programs which served the largest number of students in the most locations. The Division of Occupational Education Planning provided this data as well as the employment outlook for occupations being considered for selection.

Plans for the continued expansion of ISSOE were thus developed by a combination of field consultation with the numerous institutions providing occupational education instruction and the State Education Department units responsible for statewide efforts. Public and personal consultations were supplemented by program and job data which provided specific emphasis for priorities. The final decisions were made by the ISSOE program staff, and reflected these many inputs. All of these efforts reinforce the cooperative nature of the project.

The wide solicitation of field and State Education Department views has resulted in the selection of high priority program areas for development through ISSOE. While the selection has been limited to a relatively consensus priorities across the state. The programs which have been selected for development through ISSOE are:

1975-76

Auto Mechanics
Office Practice (Clerical)

1976-77

Commercial Foods
Building Construction

1977-78

Carpentry
Conservation
General Retailing
Health Assisting

The reaction and response by region to the opportunity to participate in ISSOE is shown by the rapid geographic expansion across New York. Maps 1, 2 and 3 reflect the growth from 1975 through the end of the reporting period. This combination of program and geographic expansion is shown in Appendix M. Early in 1978, two more regions joined ISSOE so that only two regions are presently not participating in ISSOE. Discussions have been held with these regions, and they have indicated their intention to participate beginning in the 1978-79 school year. With the inclusion of these last two regions, the plans for complete geographic coverage and participation of all public occupational education institutions in the state will have been implemented.

Plans for developing additional programs are presently being developed. These will be altered from the existing growth pattern, since New York has decided to join the Vocational-Technical Education Consortium of States (V-TECS). Through V-TECS, an expanded number of programs will be made available for selection in the regions of New York. Present plans are to incorporate the V-TECS catalogs, which closely resemble the ISSOE materials, into the ISSOE process while maintaining extensive teacher participation.

CONCLUSIONS

The active interest shown by local teachers and administrators of occupational education programs has fostered rapid expansion in the number of new program areas under development each year. When this program expansion is combined with extensive geographic growth, the complexity of ISSOE management has also been magnified. Local administrators have requested that even more programs be provided and it is expected that the availability of V-TECS catalogs will help respond to this increased demand.

The formal and informal communications among the Partnership Agencies and local participants has provided guidance for selection of new programs by the individual regions. Input from the field has been balanced by involvement of many State Education Department units.

Reaction to the opportunity to participate in setting priorities and the rate of expansion of both programs and geographic regions has been positive. Support from the field has encouraged even more rapid expansion than had been planned. It is possible that as V-TECS materials provide for even more rapid program expansion, adjustments will have to be made in the management role of the ISSOE Regional Coordinators. The selection process will continue to be important as more programs become available, and this may require more refinement at the regional level. At the regional level, the priorities of many institutions must be balanced. While the range of choices was limited, consensus was fairly easy to achieve. As choices become greater, the balancing of regional priorities will become more difficult. The ISSOE project expects that the regional occupational education planning efforts may provide assistance and guidance through more extensive regional analysis and decision-making.

The strong local support for expansion of ISSOE has been facilitated by the federal grant and state support. The external funds have been necessary to initiate participation of the many teachers, and provide the necessary management infrastructure of the Partnership Agencies. Without these funds, the systematic approach could not have been achieved and the benefits from selected regional development made available to other regions.

In order to continue the expansion of ISSOE local educational agencies are being asked to contribute to the support of ISSOE. During the next stages, continued growth will depend on strategies which demonstrate that the benefits of participation in ISSOE will continue to justify the combined federal, state and increasing local resources to expand the number of programs available. As the local cost component grows, local response will reflect the true value of ISSOE.

During this reporting period, numerous adjustments have been made in the management of the ISSOE process. All of these have been generally within the long range development of the project. The base for continued expansion is now well established, and local pressures are growing for development of other selected components of the comprehensive management system envisioned by the ISSOE concept.

SUMMARY CONCLUSIONS

The activities reported in this document represent continued development and expansion of the Instructional Support System for Occupational Education (ISSOE) in New York State. ISSOE is a major competency-based, modularized instructional system for the improvement of occupational education programs. As such, it is also a component of the Comprehensive Instructional Management System for Occupational Education (CIMS/OE). Both ISSOE and CIMS/OE are attempts to make systematic improvements in many aspects of the instructional and management delivery systems in occupational education. Although development of these systems is taking place through component developments, they are targeted on comprehensive revisions in the total complex of instruction and management in occupational education programs.

It has always been recognized that changes created by ISSOE would effect many participants in various parts of the total delivery system. As each set of development activities have provided new designs and experience, they also presented opportunities for changing basic structure and related components of the instructional delivery system. It is also clear that the avenues to nearly every aspect of the delivery system have been potentially opened by more recent developments in ISSOE. As ISSOE has produced modularized competency-based materials, issues of individualized instruction emerge. Specifications of criterion-referenced measures create needs for greater sophistication in assessment and testing. The new system has also raised major issues of in-service and pre-service education and has suggested basic revisions. Although there has been less progress on the reporting system than proposed, it is clear that there is strong local and state support for it. At the local level the reporting system is needed for systematic individual evaluation and program management, and at the state level it would contribute to program evaluation and program effectiveness.

During the period covered by this report, there has been significant progress on the components specified in the proposal. Reductions in available resources have forced deferral of some aspects of the original proposal primarily in the area of the student reporting system. Although the time schedules have shifted, the basic concepts of the total system have not been amended.

Between 1975-76 and 1976-77, the number of organizations involved in the design, development and implementation of the ISSOE curriculum tools has expanded rapidly. In the base year, two university research institutes carried nearly the complete responsibility for developing ISSOE. A coordinating unit in the Division of Occupational Instruction of the Office for Occupational and Continuing Education of the State Education Department provided the primary direction from the Education Department. By the following year, nine bureaus in the Education Department had joined the coordinating unit. The two research institutes had shifted their role to research activities and three teacher education institutions had taken their place. The expansion in the number of Partnership Agencies has been accomplished with minor delays due to contract processing difficulties. The roles and responsibilities of the various Partnership Agencies were designated early in the transition period. As they have gained operational experience with their new responsibilities, some changes have been necessary. The number of basic changes has been relatively modest, although the range of interpretations of the responsibilities has required continuous adjustment. Since 1976-77 was the transition period for these changes, it is expected that future revisions will be limited since most major problems have resulted in revised and improved operational responsibilities.

Central to the development of the ISSOE has been extensive teacher involvement in the process. This concept has been particularly successful, with groups of teacher meeting on a regional basis throughout the school year to develop, critique, refine and implement the modularized materials. The summer workshops which have initiated new program development, have brought together teachers from across the state. The teachers have been given basic instruction in the ISSOE process, and have worked intensively to produce basic materials for follow through at the regional level. Teacher interest and participation has been exceptional, despite numerous logistic problems associated with program expansion.

The ISSOE development process has developed materials in a standard format in eight occupational programs. These materials have included a complete content outline with major units which contained modules. For each module there are numbers of work tasks which incorporate major and enabling instructional objectives and

related criterion-referenced measures. All of the materials have been developed in a competency-based format and represent the entry-level job requirements for the particular cluster of jobs associated with the program area. The standardized format has proven to be acceptable in the developed programs and should continue to serve future programs.

Efforts to develop a student reporting system have progressed more slowly than expected. During the reporting period, a pilot effort was completed. This effort demonstrated the feasibility of such a system, but did not provide extensive data for management purposes. Changes in the evaluation and reporting requirements in work on a statewide system of data reporting, suggested that more extensive design work was needed on the student reporting system. As a result, this activity has been initiated by a research institute. It is expected that the revised design will provide the necessary management data for teachers, local administrators, students, parents and employers. It will also be integrated with the larger data system so as to minimize duplication, but still allow for aggregation for higher reporting level.

During the reporting period, ISSOE has expanded rapidly across New York. In mid 1976, only one complete occupational education region and parts of two others were involved. It is expected that by the 1978-79 school year, all the regions in the state will be participating in ISSOE. The geographic expansion has been accompanied by additions of Regional Coordinators in each region, and two Coordinators in some regions where logistics make this necessary. As experience has built greater confidence, new programs have also been introduced at a faster rate. From the two original programs developed in 1975, two more were added in 1976-77, and during 1977-78 four new programs were added. The rapid expansion of programs and geographic coverage have presented some organizational and management problems. These problems have pointed out the practical difficulties of rapid expansion of a system of change within the complex delivery system of occupational education in New York State.

The various activities which have been completed during the period of this report represent critical building blocks in the long term development of the ISSOE system. They provide for the continuing development of a solid base for competency-based education in occupational management capability of teachers and local administrators.

During the next phase, major efforts are needed to complete development, testing and implementation of the student reporting system. Design work on this component is presently under way. There is need for greater effectiveness and refinement in the continuing diffusion and dissemination processes and overall management of ISSOE. Research is being developed on this aspect, and should provide direction for continuing refinement of ISSOE management. There is need for a more complete evaluation of both the ISSOE delivery system and the effectiveness of the ISSOE system as it begins to impact instructional practices. An overall evaluation system will relate to both the student reporting system and diffusion and dissemination issues. Numerous teachers have identified the need for better criterion-referenced measures, and several efforts are presently under way to assist them. Closely related to this is a need to provide assistance with specific strategies for improving class and instructional management based on the materials developed under the grant. The most critical need appears to be for assistance in individualizing instruction to benefit from the modularized materials. Work is being extended on validation procedures and verification of occupational tasks by industry.

This brief agenda represents a number of major areas which have been identified for future development. It gives some sense of the comprehensive scope envisioned by the ISSOE system. The managers of ISSOE have realized that each of these components, and others which have not been mentioned, will contribute to the long run improvements in the occupational education delivery system in New York State. The commitment exists in the state to pursue this long range goal. It is hoped that all interested parties will continue their participation and support of ISSOE.

APPENDIX A

PARTNERSHIP AGENCIES

ISSOE Network of Participating Partnership Agencies

<u>Local Education Agencies</u>	<u>Regions</u>
Suffolk #1 BOCES	1E
Suffolk #2 BOCES	
Suffolk #3 BOCES	
Nassau BOCES	1W
Northern Westchester BOCES	3S
Southern Westchester BOCES	
Dutchess BOCES	3N
Orange-Ulster BOCES	
Rockland BOCES	
Sullivan BOCES	
Ulster BOCES	
Albany-Schoharie-Schenectady BOCES	4
Fulton-Hamilton-Montgomery BOCES	
Rensselaer-Columbia BOCES	
Saratoga-Warren BOCES	
Wahington-Warren-Hamilton-Essex BOCES	6
Jefferson-Lewis-Hamilton-Herkimer-Oneida BOCES	
St. Lawrence-Lewis BOCES	8
Broome-Delaware-Tioga BOCES	
Delaware-Chenango-Madison-Ostego BOCES	
Greene #2 Delaware-Schoharie-Ostego BOCES	9S
Cortland-Madison BOCES	
Tompkins-Seneca-Tioga BOCES	
Cayuga-Onondaga BOCES	
Oswego-Onondaga BOCES	9N
Onondaga-Madison BOCES	
Ontario-Seneca-Yates-Cayuga-Wayne BOCES	10
Monroe #1 BOCES	
Monroe #2 BOCES	
Genesee-Wyoming BOCES	
Livingston-Steuben-Wyoming BOCES	
Erie #1 BOCES	12
Erie #2 Cattaraugus BOCES	
Orleans-Niagara BOCES	

Local Districts

Region 1E

Walt Whitman
Patchogue-Medford
Connetquot
New Field
Bayport
Center Moriches
Greenport
Northport
East Islip
Half Hollow Hills East
Riverhead
Longwood

Region 1W

Bellmore-Merrick
East Meadow
Baldwin
Elmont
East Meadow
Mineola
Sewanhaka
Wantagh
Levittown
Seaford
Valley Stream

Region 3S

New Rochelle
Mount Vernon

Region 3N

Pine Bush
Suffern
John Jay
Middletown
Monticello

Region 4

Fonda-Fultonville
Niskayuna
Fort Plain

Region 6

Potsdam
Canton
Norwood-Norfolk
Gouverneur
Massena
Indian River
Watertown
Adirondack
South Jefferson
Harrisville
Carthage
Beaver River
General Brown

Region 8

Binghamton
Union-Endicott
Maine-Endwell
Chenango Forks
Seton
Whitney Point
Newark Valley
Johnson City
Windsor
Cooperstown
Stamford
Grand Gorge

Region 9N

Central Tech
Fabius-Pompey
Syracuse
North Syracuse
Central Square
Jamesville Dewitt
Phoenix

Region 10

Wayne Finger Lakes
Auburn
Greece Athena
Canandaigua
Sperry
Newark
Franklin
Roth
Eastridge
North Rose-Wolcott
Sodus Central
Seneca Falls
Dansville
Schroeder
Lyons
Penfield
Fairport

Region 12

Niagara Falls
Emerson
Fosdick
Walter Hansen
Newfane

Local Education Agencies (cont)

Region

Cities

Buffalo	12
New York City	2
Rochester	10
Syracuse	9N
Yonkers	3S

Resource Institutions

Cornell University - Department of Education
Cornell Institute for Occupational Education

City University of New York - Institute for Research and Development
in Occupational Education

New York University - School of Education
Department of Technology and Industrial Education

State University College at Buffalo - Industrial Arts Vocational Education

State University College at Utica/Rome - Department of Voactional-Technical
Education

State Education Department

Office of Occupational and Continuing Education
Division of Occupational Education Instruction

- Bureau of Agricultural Education
- Bureau of Business Education
- Bureau of Distributive Education
- Bureau of Health Education
- Bureau of Home Economics
- Bureau of Trade and Technical Education

Office of General Education and Curricular Services
Division for Curriculum Services

- Bureau of Occupational Education Curriculum Development

Division of Research

- Bureau of Occupational Education Research

APPENDIX B

RESPONSIBILITIES OF PARTNERSHIP AGENCIES

Roles and Responsibilities of ISSOE Teachers

1. Selected program teachers attend summer workshop orientation and begin development of modular materials.
2. Work in cooperation with other program teachers during the following school year to review content outline and develop modules.
3. Work through craft committees, or other suitable regional business and industry groups, to validate ISSOE materials.
4. Introduce ISSOE modules into their courses and programs.
5. Review, critique, revise, add or delete materials and make recommendations to Clearinghouse during the second year of development.
6. Contribute to the student reporting system for program monitoring and creation of student employability profile.
7. Participate in selected research and development activities to improve management aspects of instruction.
8. Communicate special needs related to ISSOE activities to their Regional Coordinators.
9. Participate in evaluation studies and recommend improvements in the management of ISSOE.

Roles and Responsibilities of
Area Facilitator

1. Advise and/or provide resources - people and materials - to Regional Coordinators.
2. Assist coordinators with implementation of their regional work plan.
3. Identify formal in-service needs and provide or make recommendations for ways to respond to these needs.
4. Troubleshoot area problems and respond through the Regional Coordinators and/or SED.
5. Make periodic visits to field and regional meetings.
6. Serve as liaison among coordinators within the area.
7. Submit periodic reports to the State Education Department.
8. Participate in assessments conducted by research and development institutes.
9. Work cooperatively with teacher education institutions which service other areas.

Roles and Responsibilities of Regional Coordinators

As key agents in the delivery system, project coordinators will be trained to execute the following duties:

1. Organize a regional delivery plan and introduce that plan to districts within their regions.
2. Within the delivery plan enlist the fullest possible participation of teachers new to the modularized curriculum system.
3. Oversee development of new curriculum packages and encourage utilization of completed packages by teachers within regions.
4. Establish close working relationship with local administrators, guidance, counseling, and placement staffs.
5. Provide measures throughout the region which work toward elimination of sex role stereotyping in curriculum.
6. Meet regularly with participating teachers within regions.
7. Supervise input and feedback from student reporting system to assure that system operates as per plan.
8. Articulate with post-secondary institutions regarding development and utilization of statewide curriculum system.
9. Participate in research and/or cost effective studies.
10. Cooperate with the State Education Department in development of overall statewide project.
11. Direct working groups toward adaptation of entry level modules to the needs of specific minority, disadvantaged, and linguistically or otherwise handicapped students.
12. Make recommendations for future development of program.
13. Initiate and maintain regional validation procedures through utilization of Advisory Committees.
14. Identify specific in-service needs of teachers developing and implementing ISSOE materials and secure institutional or consultant support services to respond to these needs.
15. Provide monthly reports on regional activities initiated for ISSOE.

Roles and Responsibilities of
the State Education Department

1. Provide policy and management guidance to all Partnership Agencies.
2. Facilitate communications among all Partnership Agencies.
3. Coordinate activities of all Partnership Agencies.
4. Provide selected direct curricular and substantive program support to Partnership Agencies as requested by those agencies.
5. Provide major financial support for the infrastructure of the Partnership Agencies.
6. Direct long range research and development efforts for future development of ISSOE.
7. Receive, review and synthesize materials developed by teachers in all regions and reproduce successive generations of ISSOE materials.
8. Respond to specific needs of all members of the Partnership Agencies within limits of resources and capabilities.

APPENDIX C

ISSOE CURRICULUM PROCESS

ISSOE CURRICULUM PROCESS**Step I - Divide Subject Matter Into Units.****Unit:**

A portion of the course which consists of a logical clustering of modules.

1. Utilize content specialists to assist teachers in developing the units.
2. Occupational analyses are used to insure all units in the subject area are addressed.
3. Teachers are content experts, therefore their judgements are paramount.
4. Start a group development process to maximize participation and to obtain consensus.

Example:

MODULAR CURRICULUM DEVELOPMENT
FOR OCCUPATIONAL EDUCATION

AUTOMOTIVE SERVICE OCCUPATIONS
AUTOMOTIVE MECHANICS COURSE

- UNIT 01: Introduction to Auto Mechanics
UNIT 02: Chassis and Frame
UNIT 03: Power Plant
UNIT 04: Electrical
UNIT 05: Drive Line
UNIT 06: Body Mechanical
UNIT 07: Accessories

Step II - Determine Appropriate Modules for Units.**Module:**

A portion of the course which addresses related tasks drawn from occupational analyses expressed in performing terms. Each module contains one or more tasks or major objectives, enabling objectives, suggested instructional content and criterion-referenced measures.

1. A group developmental process should be used to obtain consensus.
2. Teachers with the aid of a content specialist determine appropriate modules.
3. These are based upon teacher expertise in occupation and upon a complete occupational analysis.

Step II - contd.

Example:

MODULAR CURRICULUM DEVELOPMENT
FOR OCCUPATIONAL EDUCATION

AUTOMOTIVE SERVICE OCCUPATIONS

AUTOMOTIVE MECHANICS COURSE

UNIT 01: INTRODUCTION TO AUTO MECHANICS

MODULE:

01. Shop Procedures
02. Personal Safety
03. Job Requirements
04. Job Opportunities
05. Hand Tools
06. Power Equipment
07. Lubrication Service
08. Wheel Bearing
09. Tire Service

UNIT 02: CHASSIS AND FRAME

MODULE:

01. Drum Brakes
02. Disc Brakes
03. Hydraulics
04. Suspension
05. N.Y.S. Inspection
06. Alignment
07. Steering

UNIT 03: POWER PLANT

MODULE:

01. Liquid Cooling
02. Carburetor
03. Storage & Delivery
04. Fuel Injection
05. Primary Circuit
06. Secondary Circuit
07. Tune Up & Diagnosis
08. Electronic Ignition
09. Exhaust System
10. Emission Control
11. Short Block
12. Valve Systems

UNIT 04: ELECTRICAL

MODULE:

01. Lights
02. Storage Battery
03. Charging System
04. Starting System
05. Instruments
06. Power Accessories

UNIT 05: DRIVE LINE

MODULE:

01. Drive Shaft
02. Rear Assembly
03. Clutch Assembly
04. Manual Transmission
05. Automatic Transmission

UNIT 06: BODY MECHANICAL

MODULE:

01. Body Adjustments
02. Glass Adjustments
03. Interior Appearance
04. Exterior Appearance

UNIT 07: ACCESSORIES

MODULE:

01. Heater
02. Air Conditioner
03. Speed Control Devices
04. Rear Defogger/Defroster

Step III - Develop Major Objectives.

Major Objective:

A statement of what the student should be able to do, the conditions under which the task will be performed, and the standards for evaluating the performance. The achievement of a major objective will be reported as a component of the student's employability profile.

Major Objectives - Intended Learning Outcomes

- Major competencies students are to learn (perform).
- Major competencies that are reported when completed.
- Major competencies that relate to jobs in the real world.
- Major competencies that can be clustered to D.O.T. job titles.
- Major competencies that can be utilized to show student progress.
- Major competencies that can be utilized to evaluate programs.
- Major competencies that can be utilized to determine resources needed.

1. Determine major competencies (tasks) needed to comprehend and perform module.
2. Develop the above competencies as major objectives utilizing the performance mode.
3. Utilize uniform format.

The major objective corresponds to a job or major tasks of a large job in business/industry. The following examples demonstrate this relationship in Automotive Mechanics:

Example 1. One job - one task/major objective.

Job: Chassis Lubrication

Task: Lubricate Auto Chassis

Example 2: One job - six tasks/major objectives.

Job: Complete Brake Job - (Drum Brake)

Tasks:

Remove and Replace Brake Shoes
Remove and Replace Brake Lines
Remove and Replace Wheel Cylinder
Overhaul a Master Cylinder
Recondition a Wheel Cylinder
Machine Brake Drums

The skills needed to perform the tasks/major objectives become minor or enabling objectives in the ISSOE curriculum system.

COURSE:

MODULE:

UNIT:

TASK:

CODE:

MAJOR OBJECTIVE

7
FORMAT FORM FOR ISSOE CURRICULUM

ENABLING OBJECTIVES

SUGGESTED INSTRUCTIONAL CONTENT

COURSE: State-approved course of study; the course consists of modules of instruction essential to the acquisition of competencies expected by the world of work.

UNIT: A logical clustering of related modules of instruction.

CODE: The first four digits, 1732 (A.M.) and 1433 (O.T.), identify the program area and course. The following pairs of digits represent unit, module and major objective.

MODULE: A portion of the course which addresses related tasks drawn from occupational analysis expressed in performance terms. Each module contains one or more tasks and major objectives, enabling objectives, suggested instructional content and criterion-referenced measurement.

TASK: An activity which has a definite beginning and ending, and is performed within a limited period of time by an individual. One or more tasks are included in each module.

MAJOR OBJECTIVE

A statement of what the student should be able to do, the conditions under which task will be performed, and the standards for evaluating the performance. The achievement of a major objective will be reported as a component of the student's employability profile.

ENABLING OBJECTIVES

A subordinate objective which describes in performance terms a cognitive, affective, and/or psychomotor skill which the student will need to accomplish the major objective. Achievement of an enabling objective is not reported; performance and recording of this achievement is left to the discretion of the instructor.

SUGGESTED INSTRUCTIONAL CONTENT

A brief listing of suggested demonstrations and points of information which the instructor may wish to employ to assist the student in meeting the major objective.

COURSE: Auto Mechanics
UNIT: INTRODUCTION TO AUTO MECHANICS
CODE: 17320107

MODULE: LUBRICATION SERVICE
TASK: Change Engine Oil and Filter

MAJOR OBJECTIVE

- 01 Given an operational engine with oil, oil filter, necessary tools and materials, the student will:
- . drain the engine oil
 - . remove old oil filter
 - . prepare gaskets and gasket surfaces
 - . install new engine oil and oil filter
 - . check for leaks
 - . complete the task in twice the flat rate time.

ENABLING OBJECTIVES

- Given an operational engine with oil, oil filter, necessary tools and materials, the student will:
- . identify the various types and grades of oil
 - . identify the types of oil filters
 - . identify the various types and uses of drain plugs
 - . demonstrate replacement of a stripped oil pan drain plug.

SUGGESTED INSTRUCTIONAL CONTENT

Demonstration:

- . Draining and refilling crankcase
- . Removing oil filter
- . Using special tools
- . Preparing and installing new oil filter

Information:

- . Types of oils
- . Types of oil filters
- . Special tools
- . Types of drain plugs
- . Use of manuals

Step IV - Prepare Enabling Objectives.

Enabling Objective:

A subordinate objective which describes in performance terms a cognitive, affective, and/or psychomotor skill which the student will need to accomplish the major objective. Achievement of an enabling objective is not reported; performance of and recording of this achievement is left to the discretion of the instructor.

1. Enabling Objectives (Instructional Phase)

- Minor competencies needed to learn major objectives.
- Minor competencies to be used to prepare daily instructional program.
- Minor competencies used to develop instructional strategies.
- Minor competencies to be used for diagnostic purposes.

Step V - Prepare Criterion-Referenced Measurement Instruments.

Criterion-Referenced Measurement Instrument:

Instrument to determine if major objective has been met. Used to certify that performance has been obtained. Criterion-referenced measurement is derived from the major performance objective and directly measures the individual student's ability to successfully complete the task. The test items are performance-based and replicate as closely as possible the task as it would be evaluated in the world of work.

Example: (See Page 8)

Testing

ALL TESTING IS PERFORMANCE

What is the best balance between test quality and economy of test administration? This is the crux of performance testing. The ISSOE test method (Criterion-Referenced Measure) requires performance identical (as close as possible) to that specified in the actual job.

Concepts for ISSOE

- a. Utilize the performance mode for testing. This can be executed as:
 1. psychomotor performance test
 2. valid cognitive test (verbal: oral or written)
 3. combination of 1 and 2.

CRITERION-REFERENCED MEASUREMENT SHEET

CHECK ONE ONLY

NAME _____ DATE _____

MET MAJOR OBJECTIVE ☐

TEACHER _____ CLASS _____

NEEDS FURTHER INSTRUCTION ☐

MODULE: LUBRICATION SERVICE 17320107

REMARKS:

MAJOR OBJECTIVE: 01

Given an operational engine with oil, oil filter, necessary tools and materials, the student will:

- . drain the engine oil
- . remove old oil filter
- . prepare gaskets and gasket surfaces
- . install new engine oil and oil filter
- . check for leaks
- . complete the task in twice the flat rate time.

Did student, when applicable:

1. Observe safety standards? _____
2. Use trade acceptable standards? _____
3. Meet manufacturer's specs? _____
4. Use proper procedure? _____
5. Use proper tools? _____
6. Observe good housekeeping practices? _____
7. Complete necessary paper work? _____
8. Complete the job in an acceptable time period based on flat rate time? _____

9

Step V - contd.

b. Two purposes of testing as utilized by the ISSOE effort.

1. Major Objective Testing

Purpose of certifying that competency has been attained (at this point in time).

- Teacher is best judge of this at the present time.
- Teachers' judgements will not vary significantly. (Competent teachers judging similar items). Congruence among test raters is high in the vocational area.

2. Enabling or Minor Objectives Testing

- Used to determine completion of minor competencies by student.
- Used to diagnose need for additional study, related study, remedial study, use of different learning strategies, etc., by student.

Step VI - Prepare Suggested Instructional Content.

Suggested Instructional Content:

A brief listing of suggested demonstrations and points of information which the instructor may wish to employ to assist the student in meeting the major objective.

Example: (See Page 6).

Step VII - Field Test Major Objectives.

- a. Utilize in class-shop settings.
- b. Record findings.
- c. Note reactions.

Example: (See Page 10).

Step VIII - Evaluation.

- a. Assess utilization in local setting
- b. Review findings with other teachers in local setting.
- c. Review findings with other teachers in region.
- d. Obtain consensus with other teachers in region upon agreements and recommendations.

MODULE CRITIQUE SHEET

MODULE TITLE: _____ DATE: _____

TEACHER: _____ SCHOOL: _____

OBJECTIVE NO: _____

I. How many students started the objective? _____

How many students successfully completed the objective? _____

Of the students who were unsuccessful on the criterion-referenced measurement:

how many could not perform the task adequately? _____

how many could not perform the task within time limits? _____

how many had other reasons? Specify: _____

II. Is the major objective acceptable as written? (check one) ☐ acceptable
☐ revise as follows: _____

III. Did the criterion-referenced measurement adequately test the major objective?
(check one) ☐ acceptable ☐ revise as follows: _____

IV. Suggestions for revising/adding enabling objectives (both cognitive and psychomotor)

V. Comments on the overall quality and/or usefulness of this section of the module.

Step VIII - contd.

- e. Transfer consensus opinions to regional coordinator.
- f. Regional coordinator send recommendations to clearing house.
- g. Clearing House
 - i. Make judgements on minor issues.
 - ii. Regional coordinators review these with teachers and send findings to clearing house for action.

Step IX - Coding

The first four digits identify the program area and course. The following pairs of digits represent unit, module and major objective.

Example:

17	32	00	00	00
Trade	Automotive	Unit	Module	Major
Education	Mechanics			Objectives

APPENDIX D

MANAGEMENT EVALUATION

ISSOE

THE INSTRUCTIONAL SUPPORT SYSTEM FOR OCCUPATIONAL EDUCATION

THE STUDENT REPORTING AND INSTRUCTIONAL MANAGEMENT SYSTEMS

(An Overview for Co-op Coordinators and Occupational Educators)

ISSOE

THE STUDENT REPORTING AND INSTRUCTIONAL MANAGEMENT SYSTEMS

(An Overview for Co-op Coordinators and Occupational Educators)

"The primary purpose of cooperative education is to provide for training purposes on-the-job experience related to the student's course of study and chosen occupational objective...."

"The staff of the job placement services should assist all students in the school system, ages 14 and up, who desire experiences while in school in terms of enriching their education and training."

"All job placements should be related to student need and desire for enrichment and expansion of the schools educational offerings...."

The above statements are excerpts from an article written in the May, 1977 issue of, School Shop magazine. The title of the article was, "How A Job Placement Program Works".

It is the intent of this report to present an overview of the ISSOE Student Reporting and Instructional Management Systems and to propose how it may be utilized with teacher generated materials to cause the role of the Co-op Coordinator in occupational education to be more congruent with the job market, curriculum and student needs. A review of extant documentation on the topics of the ISSOE reporting system was conducted by Cornell University in 1976 for the purpose of clarifying the system objectives and identifying constraints and problems associated with the reporting process. The review determined that the ISSOE reporting system was in a pre-paradigm state and that no firm conceptual design existed. The conceptual design that follows is that portion of the Student Reporting System that deals with the intended learning outcomes of students for the job placement market.

The materials and forms that follow in this report were generated as part of my work in the development of an Instructional Management System that incorporated and utilized the Student Reporting System. The product of these systems are a result of the ISSOE Project workshops conducted by Cornell University in 1975 and 1976 and my tenure as an occupational education teacher since 1968.

TITLE: ISSOE DEFINITION OF TERMS

GOAL: To develop mutually agreed upon terminology for use by all involved in ISSOE through-out New York State.

PURPOSE: To eliminate the confusion deriving from the meanings of terms used in curriculum development and implementation.

ACTION: Managers and participants in the ISSOE effort agreed, during the 1976 summer workshop, to accept the following terms and definitions as shown on Page 2.

TABLE OF CONTENTS

Introduction.	1
ISSOE Definition of Terms	1
ISSOE Standardized Format (Blank Copy).	3
ISSOE Student Journey to Future	5
ISSOE Student Personalized Program Selection.	7
ISSOE Curriculum Student Personalized Program Selection Portfolio	9
ISSOE Class Progress Chart.	11
Student Employability Profile	13
Student Use - Work Order.	15
Employability Portfolio Information Sheet	17
Standardized Format (Fill Out Job Application).	19
Application for Employment.	22
Automotive Mechanics Student Achievement Record	27
Daily Progress Report	38

10/14/76

COURSE: State-approved course of study; the course consists of modules of instruction essential to the acquisition of competencies expected by the world of work.

UNIT: A logical clustering of related modules of instruction.

CODE: The first four digits, 1732 (A.M.) and 1433 (O.T.), identify the program area and course. The following pairs of digits represent unit, module and major objective.

MODULE: A portion of the course which addresses related tasks drawn from occupational analysis expressed in performance terms. Each module contains one or more tasks and major objectives, enabling objectives, suggested instructional content and criterion-referenced measurement.

TASK: An activity which has a definite beginning and ending, and is performed within a limited period of time by an individual. One or more tasks are included in each module.

MAJOR OBJECTIVE

A statement of what the student should be able to do, the conditions under which task will be performed, and the standards for evaluating the performance. The achievement of a major objective will be reported as a component of the student's employability profile.

(2)

ENABLING OBJECTIVES

A subordinate objective which describes in performance terms a cognitive, affective, and/or psychomotor skill which the student will need to accomplish the major objective. Achievement of an enabling objective is not reported; performance and recording of this achievement is left to the discretion of the instructor.

66

SUGGESTED INSTRUCTIONAL CONTENT

A brief listing of suggested demonstrations and points of information which the instructor may wish to employ to assist the student in meeting the major objective.

67

TITLE: ISSOE STANDARDIZED FORMAT (Blank Copy)

GOAL: To be used by all Occupational Education personnel when designing, writing, and implementing curriculum in all program areas through-out New York State.

PURPOSE: To foster the use of:

- a. Standardized curriculum guidelines.
- b. Performance based education as a mode.
- c. Performance based criteria for evaluation of student performance.
- d. The ISSOE coding system for the Student Reporting System.

ACTION: This format was adopted by teachers during the 1976 summer workshop. This uniform format was tested and found acceptable in four occupational areas during 1976-77. At present, eight occupational areas have adopted this format.

COURSE:

UNIT:

CODE:

MODULE:

TASK:

MAJOR OBJECTIVE

ENABLING OBJECTIVES

SUGGESTED INSTRUCTIONAL CONTENT

(4)

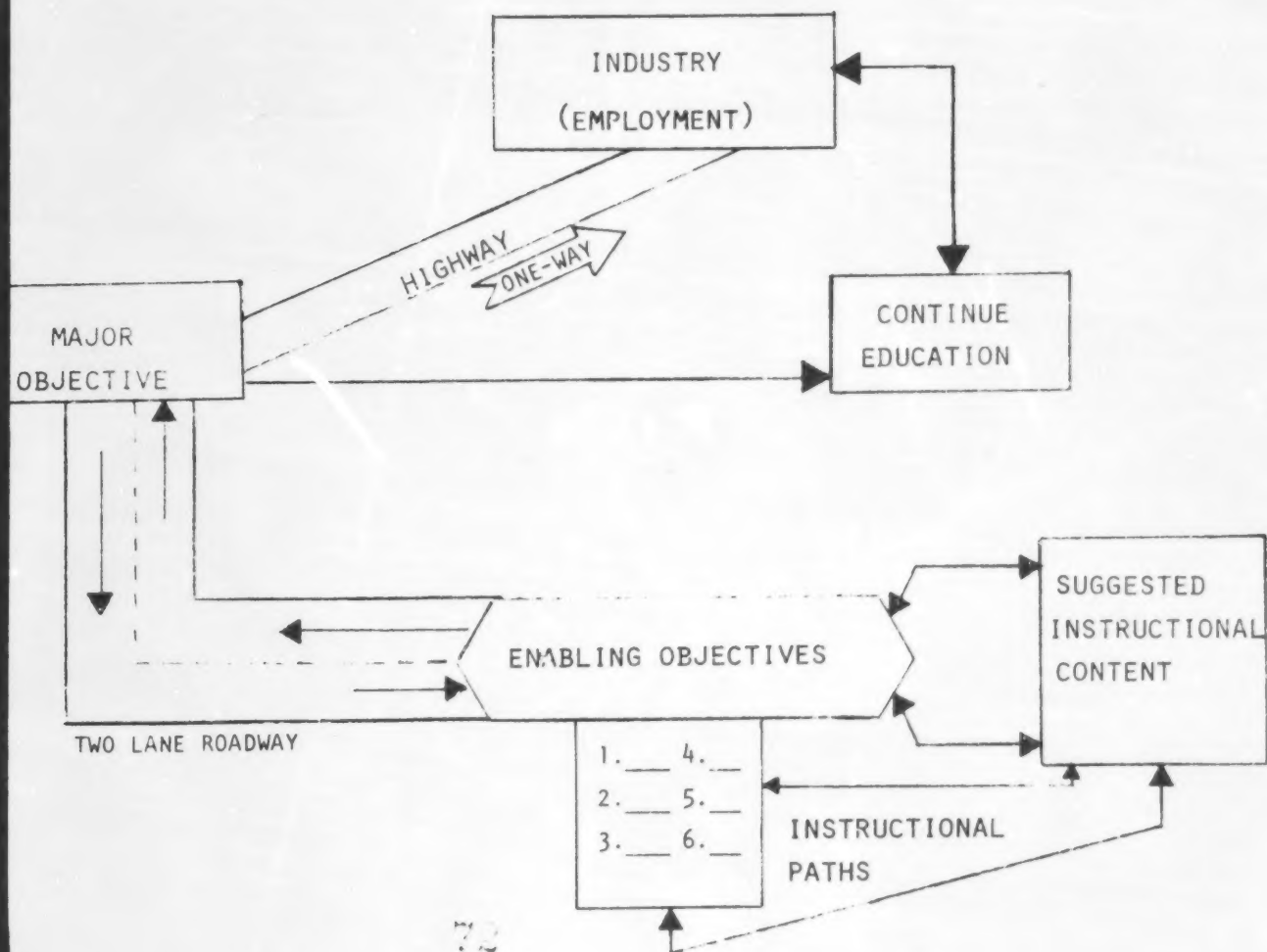
TITLE: ISSOE - STUDENT JOURNEY TO FUTURE

GOAL: To graphically demonstrate the use and flexibility of the ISSOE standardized format for teacher and student.

PURPOSE: To illustrate the use of the:

- a. Suggested Instructional Content (teacher domain)
- b. Enabling Objectives (student domain for learning)
- c. Major Objective (intended learning outcome of student)
- d. Format as an instrument that allows options for the teacher to manipulate the students' learning process.
- e. Format as an instrument that allows the student options to challenge the Major Objective and meeting its criteria or returning to the Enabling Objectives for further instructions.
- f. Learning process in preparing the student for the job market.

ISSOE-STUDENT JOURNEY TO FUTURE



TITLE: ISSOE STUDENT PERSONALIZED PROGRAM SELECTION

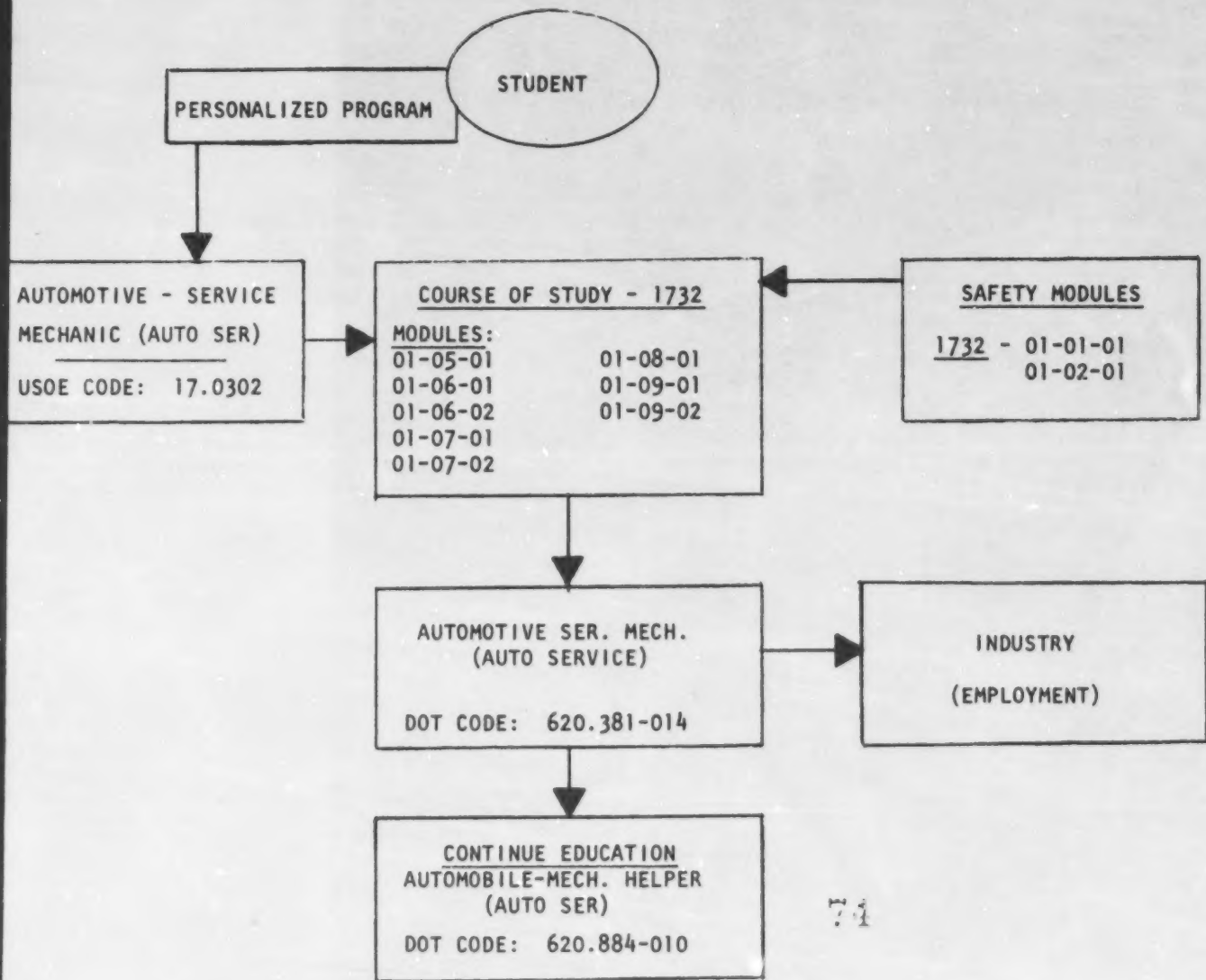
GOAL: To graphically illustrate the use of the USOE and DOT coding systems for student employment training.

PURPOSE: To give teachers, placement counselors, co-op coordinators and administration the option for preparing a personalized course of study for those students who are:

- a. Seniors seeking employment in a specific field or area.
- b. Late entrants into a course of study who wish to enter the "world of work" before graduation.
- c. Special occupation students who have a variety of needs to be met.
- d. Desirous of being co-oped into the employment market.

ISSOE

STUDENT PERSONALIZED PROGRAM SELECTION



ISSOE CURRICULUM
STUDENT PERSONALIZED PROGRAM
SELECTION PORTFOLIO

Student _____ Date _____
Subject Area _____ D.O.T.Code _____

Teacher Approval _____ Date _____
P.P.S. Approval _____ Date _____
Administrator Approval _____ Date _____

D.O.T. CODE NUMBER _____

Employment Title _____

ISSOE CODE

[illegible]

TITLE: ISSOE CLASS PROGRESS CHART

GOAL: A computerized output as to the skills progress of the student population in a program.

PURPOSE: For use by:

- a. Teachers who desire to know the skills progress of the entire class.
- b. Co-op Coordinators in assessing the skills progress of the entire class, student by student.
- c. Guidance personnel in assessing class progress.
- d. Administrators in assessing student progress.

2/22/77

ISSOE

PROGRESS CHART

AUTOMOTIVE MECHANICS PROGRAM

STUDENT:

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

11.

12.

13.

14.

15.

R & R BRAKE SHOES
R & R PARKING
R & R

R & R BRAKE SHOES
R & R PARKING
R & R

SHOES
PARKING BRAKE
DISC
R & R

R & R BRAKE
 R & R BRAKE
 R DISC BRAKE
 RING BRAKE CABL

BRAKE CABLE
 BRAKE CALIPERS
 BRAKE LINE
 R & R WHEEL
 R & R

- CALIPER
 - LINE
 - R WHEEL CYLINDER
 - R & R MASTER
 - R & P

EL CYLINDER
R MASTER CYL
R & R POWER
R & P

UNDER CYLINDER
R POWER BRAKE
R & R PROPO
OVER

CYLINDER
ER BRAKE ASSIS
R PROPORTION
OVERHAUL MA
RECON

MAKE ASSIST
PORTIONING VAL
HAUL MASTER
RECONDITION
OVER

LIST U
 ONING VALVE
 MASTER CYLINDER
 CONDITION WHEEL
 OVERHAUL D
 MACH

VALVE
CYLINDER
WHEEL CYLINDER
DISC CYLINDER
BRAKE MACHINE

DISC BRAKE CALIPER

CYLINDER
 BRAKE CALIPERS
 BRAKE DRUMS &

DRUMS & DISCS

(12)

2/24/77

79

TITLE: STUDENT EMPLOYABILITY PROFILE

GOAL: A computerized output of a student's Employability Profile.

PURPOSE: For use by:

- a. Teachers who desire to know an individual student's skills progress,
- b. Co-op Coordinators in assessing student skills for employment potential.
- c. Guidance counselors in assessing students' skills progress for parents, home schools, etc.
- d. Students who desire to know their skills progress.
- e. Employers who desire to know the potential employees skills progress.

NOTE: The Cum Q Score grading system is to show the feasibility of including a numerical grade in the computer output. The purpose of this design is to satisfy a need that exists in the total educational process.

The Cum Q Score design is by no means perfected. The feasibility of such a system is fact. The agreement by those in Academic and Occupational Education as to its design and implementation is yet to be resolved.

FIGURE 2: STUDENT EMPLOYABILITY PROFILE

1. STUDENT NAME	JOHN SMITH																								
2. D.O.T. CODE	Brakeman 620.281-034																								
3. TASKS ACQUIRED AND CUM SCORE	<table> <tr><td>1. R & R Brake Shoes</td><td>(6)</td></tr> <tr><td>2. R & R Parking Brake Cable</td><td>(6)</td></tr> <tr><td>3. R & R Disc Brake Caliper</td><td>(9)</td></tr> <tr><td>4. R & R Brake Lines</td><td>(8)</td></tr> <tr><td>5. R & R Wheel Cylinder</td><td>(8)</td></tr> <tr><td>6. R & R Master Cylinder</td><td>(6)</td></tr> <tr><td>7. R & R Power Brake Assist</td><td>(8)</td></tr> <tr><td>8. R & R Proportioning Valve</td><td>(7)</td></tr> <tr><td>9. Overhaul Master Cylinder</td><td>(6)</td></tr> <tr><td>10. Recondition Wheely Cylinder</td><td>(8)</td></tr> <tr><td>11. Overhaul Disc Brake Caliper</td><td>(8)</td></tr> <tr><td>12. Machine Brake Drum & Disc</td><td>(6)</td></tr> </table>	1. R & R Brake Shoes	(6)	2. R & R Parking Brake Cable	(6)	3. R & R Disc Brake Caliper	(9)	4. R & R Brake Lines	(8)	5. R & R Wheel Cylinder	(8)	6. R & R Master Cylinder	(6)	7. R & R Power Brake Assist	(8)	8. R & R Proportioning Valve	(7)	9. Overhaul Master Cylinder	(6)	10. Recondition Wheely Cylinder	(8)	11. Overhaul Disc Brake Caliper	(8)	12. Machine Brake Drum & Disc	(6)
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11. Overhaul Disc Brake Caliper	(8)																								
12. Machine Brake Drum & Disc	(6)																								
4. CUM Q SCORE	7.6																								

TITLE: STUDENT USE - WORK ORDER

GOAL: To promote Psychomotor, Cognitive and Affective learning.

PURPOSE: For use in:

- a. Simulating industrial needs through information required on WORK ORDER.
- b. Promoting cognitive learning through use of trade manuals and specification charts.
- c. Promoting writing skills.
- d. Promoting reading skills.
- e. Helping student become organized.
- f. Promoting a change in the students affective domain of learning.

(TO BE DISPLAYED ON VEHICLE)

(91)

TITLE: EMPLOYABILITY PORTFOLIO INFORMATION SHEET

GOAL: To make the students aware of the materials and information needed when applying for employment.

PURPOSE: To be used:

- a. As a hand-out sheet to students for reference.
- b. By teacher in preparing students for employment.
- c. By placement counselors and Co-op coordinators in preparing students for employment.
- d. To promote Psychomotor, Cognitive and Affective learning domains of students.
- e. To cause a student to become organized.

STUDENT PERFORMANCE BASED EVALUATION
ISSOE CURRICULUM

Instructor: Mr. Zuzio
September 26, 1977

Automotive Mechanics
"Employability Portfolio"

The following items are to be obtained and placed into your
"Employability Portfolio".

1. A copy of your social security number.
2. A copy of your birth certificate.
3. At least three personal letters of reference.
4. Complete records of your employment to date.
5. Complete records of your educational history.
6. Any personal information that will aid you in properly filling out an employment application.
7. If needed; Working papers.

Letters of reference may be obtained from the following sources:

- | | |
|----------------|---------------|
| a. Businessmen | f. Policemen |
| b. Ministers | g. Doctors |
| c. Rabbis | h. Lawyers |
| d. Priests | i. Teachers |
| e. Firemen | j. Principals |

Any other people who are in the position to give you a good character reference may be used.

TITLE: STANDARDIZED FORMAT

GOAL: To standardize curriculum guidelines for use through-out New York State.

PURPOSE: For use in:

- a. Identifying course of study.
- b. Identifying unit of instruction.
- c. Identifying module and task statement.
- d. Coding module, task and major objective.
- e. Informing and directing students as to what is expected from them by way of performance.
- f. Identifying performance criteria as stated in the Major Objective.
- g. The evaluation of the student's performance by use of the Criterion-Referenced Measurement Sheet.
(On the reverse side of the Format.)
- h. Setting uniform criterion guidelines through-out New York State.

CRITERION-REFERENCED MEASUREMENT SHEET

CHECK ONE ONLY

NAME _____ DATE _____ MET MAJOR OBJECTIVE ☐

TEACHER _____ CLASS _____ NEEDS FURTHER INSTRUCTION ☐

MODULE: JOB REQUIREMENTS 17320103

REMARKS:

MAJOR OBJECTIVE: 01

Given a typical job application form, the student will:

- . print all information legibly
- . print accurate information
- . sign legibly
- . complete form neatly

Did student, when applicable:

1. Observe safety standards?
2. Use trade acceptable standards?
3. Meet manufacturer's specs?
4. Use proper procedure?
5. Use proper tools?
6. Observe good housekeeping practices?
7. Complete necessary paper work?
8. Complete the job in an acceptable time period based on flat rate time?

(20)

COURSE: Auto Mechanics
UNIT: INTRODUCTION TO AUTO MECHANICS
CODE: 17320103

MODULE: JOB REQUIREMENTS
TASK: Fill Out Job Application

MAJOR OBJECTIVE

- 01 Given a typical job application form, the student will:
- . print all information legibly
 - . print accurate information
 - . sign legibly
 - . complete form neatly.

ENABLING OBJECTIVES

- Given a typical job application form, the student will:
- . review examples of employer requirements
 - . list five traits an employer may observe as acceptable
 - . practice filling out a typical job application.

SUGGESTED INSTRUCTIONAL CONTENT

Demonstration:

- . Filling out job application

Information:

- . Qualities an employer seeks in a job applicant:
 - Attitude
 - Appearance
 - Punctuality
 - Basic tool kits
- . Application forms:
 - Variety of applications
 - Consistency in printing
 - References
 - Basic Skills
 - Education
 - Transportation

TITLE: APPLICATION FOR EMPLOYMENT

GOAL: To familiarize students with employment application informational requirements.

PURPOSE: For use with:

- a. Task statement #010301, fill out Job Application.
- b. Criterion-Referenced Measurement Sheet (CRMS) as the evaluative instrument.
- c. The Enabling Objectives as for student training and practice.
- d. The development of the, Psychomotor, Cognitive, and Affective learning domains.
- e. Preparing a student for the first job interview with a placement counselor or Co-op Coordinator.

APPLICATION FOR EMPLOYMENT

(PLEASE PRINT PLAINLY)

The Civil Rights Act of 1964 prohibits discrimination in employment because of race, color, religion or national origin. Public Law 90-202 prohibits discrimination because of age. The laws of some states prohibit some or all of the above mentioned types of discrimination.

PERSONAL

Date: _____

Name _____ Social Security No. _____
Last First Middle Initial

Present address _____
No. Street City State Zip

How many years have you lived at this address? _____ Telephone No. (____) _____
Area

Previous address _____ How long did you live there? _____
No. Street City State Zip

Job(s) applied for 1. _____ Rate of pay expected \$ _____ per _____

2. _____ Rate of pay expected \$ _____ per _____

How did you learn of this opening? _____

Do you want to work ☐ Full-Time or ☐ Part-time. Specify days and hours if part-time _____

Have you worked for us before? _____ If yes, when? _____

List any friends or relatives working for us _____

If hired, on what date will you be available to start work? _____

Are there any other experiences, skills, or qualifications which you feel would especially fit you for work with the Company? _____

If hired, do you have a reliable means of transportation to get to work? _____

Do you have any physical handicaps which would prevent you from performing specific kinds of work? _____ If yes, describe the defect(s) and explain the work limitations. _____

Have you had a serious illness in the past 5 years? ☐ No ☐ Yes (describe) _____

Have you ever received compensation for injuries? ☐ No ☐ Yes (explain) _____

Have you ever been convicted of a crime, excluding misdemeanors and summary offenses? ☐ No ☐ Yes

If yes, describe in full _____

Person to be notified in case of accident or emergency

Name _____ Phone Number _____

Address _____

EDUCATIONAL BACKGROUND

TYPE OF SCHOOL	NAME AND ADDRESS	How Many Years Attended	Graduated	COURSE OR MAJOR
GRAMMAR OR GRADE			☐ Yes ☐ No	
HIGH SCHOOL			☐ Yes ☐ No	
COLLEGE			☐ Yes ☐ No	
POST GRADUATE			☐ Yes ☐ No	
BUSINESS OR TRADE			☐ Yes ☐ No	
OTHER			☐ Yes ☐ No	

MILITARY SERVICE RECORD

Have you ever served in the armed forces? ☐ Yes ☐ No If yes, what branch? _____

Dates of duty: From _____ To _____ Rank at discharge _____
Month Day Year Month Day Year

What were your duties in the Service (include special training and duty station)? _____

Have you had any schooling under the G. I. Bill of Rights? _____ If yes, describe. _____

TO THE APPLICANT:

Do not answer any *italicized* question below the double line unless the employer has checked the box next to the question. A check indicates that the information requested is needed for 1) a bonafide occupational qualification, 2) is in compliance with national security laws, or 3) other legally permissible reasons.

- ☐ Are you over 21 years of age? ☐ Yes ☐ No If no, employment is subject to verification that you are of minimum legal age.
- ☐ When were you born? _____
Month Day Year
- ☐ How old are you? _____
- ☐ Sex: ☐ Male ☐ Female
- ☐ Height: _____ ft. _____ in.
- ☐ Weight: _____ lbs.
- ☐ What is your marital status ☐ Single ☐ Engaged ☐ Married ☐ Separated ☐ Divorced ☐ Widowed
- ☐ When were you married? _____
Month Day Year
- ☐ How many dependents do you have (including yourself)? _____
- ☐ Are you a United States Citizen? ☐ Yes ☐ No
- ☐ Have you registered for the Draft? ☐ Yes ☐ No
- ☐ What is your Selective Service classification? _____
- ☐ Please tell us when you attended school.
☐ Elementary . . . From _____ to _____ ☐ College From _____ to _____
☐ High School . . . From _____ to _____ ☐ _____ (other) . . . From _____ to _____
- ☐ Have you ever been bonded? ☐ Yes ☐ No If yes, for what job(s)? _____
- ☐ Employer may ask other bonafide occupational questions below:
☐ _____

PERSONAL REFERENCES

(Excluding Former Employers or Relatives)

Name and Occupation	Address	Phone Number
1. _____	_____	
2. _____	_____	
3. _____	_____	

PRIOR WORK HISTORY (LIST IN ORDER, LAST OR PRESENT EMPLOYER FIRST)

DATES		NAME AND ADDRESS OF EMPLOYER	RATE OF PAY		SUPERVISOR'S NAME AND TITLE	REASON FOR LEAVING
FROM	TO		START	FINISH		

Describe in detail the work you did.						

DATES		NAME AND ADDRESS OF EMPLOYER	RATE OF PAY		SUPERVISOR'S NAME AND TITLE	REASON FOR LEAVING
FROM	TO		START	FINISH		

Describe in detail the work you did.						

DATES		NAME AND ADDRESS OF EMPLOYER	RATE OF PAY		SUPERVISOR'S NAME AND TITLE	REASON FOR LEAVING
FROM	TO		START	FINISH		

Describe in detail the work you did.						

DATES		NAME AND ADDRESS OF EMPLOYER	RATE OF PAY		SUPERVISOR'S NAME AND TITLE	REASON FOR LEAVING
FROM	TO		START	FINISH		

Describe in detail the work you did.						

May we contact the employers listed above? _____ If not, indicate below which one(s) you do not wish us to contact

Occasionally the form of an application blank makes it difficult for an individual to adequately summarize his complete background. To assist us in finding the proper position for you in our company, use the space below to summarize any additional information necessary to describe your full qualifications.

Thank you for completing this application form and for your interest in employment with us. We would like to assure you that your opportunity for employment with this company will be based only on your merit and on no other consideration.

PLEASE READ CAREFULLY
APPLICANT'S CERTIFICATION AND AGREEMENT

I hereby certify that the facts set forth in the above employment application are true and complete to the best of my knowledge. I understand that if employed, falsified statements on this application shall be considered sufficient cause for dismissal. You are hereby authorized to make any investigation of my personal history and financial and credit record through any investigative or credit agencies or bureaus of your choice.*

Signature of Applicant _____

*NOTE: The Provisions of the Fair Credit Reporting Act may be applicable if a credit report on the applicant is obtained and considered.

DO NOT WRITE BELOW THIS LINE

INTERVIEW ☐ YES ☐ NO Date _____ Hour _____

Result of Interview _____

Acceptable for Employment? _____ Starting Rate _____ Starting Date _____ Shift _____

Occupation _____ Dept. _____ Clock No. _____

Interviewed by _____ Employed by _____

_____ Approved by _____

This Application For Employment Form is sold for general use throughout the United States. Amsterdam Printing and Litho Corp. assumes no responsibility for the inclusion in said form of any questions which, when asked by the Employer of the Job Applicant, may violate State and/or Federal Law.

TITLE: AUTOMOTIVE MECHANICS - STUDENT ACHIEVEMENT RECORD

GOAL: A personal record of a student's achievements.

PURPOSE: For use:

- a. In motivating the student.
- b. In keeping a cumulative record of the student's skills achievement.
- c. As a student's permanent record of his or her saleable skills. It becomes the student's personal property.
- d. By placement counselors and co-op coordinators in assessing the student's marketable skills.
- e. In placing a student in a job related to the student's desire and needs for enriching the schools educational offerings.

BOARD OF COOPERATIVE EDUCATIONAL SERVICES
SOUTHWEST CENTER

AUTOMOTIVE MECHANICS

STUDENT ACHIEVEMENT RECORD

Students Name

Teachers Name

AM _____ PH _____
Session

Home School

AUTOMOTIVE MECHANICS (1732)

10377

	1	2	3	4	5	Meets Per. Obj.
UNIT 01: INTRODUCTION TO AUTOMOTIVE MECHANICS						
Module 01: Shop Procedures						
Task 01: Identify Shop Hazards						
Module 02: Personal Safety						
Task 01: Identify Personal Safety						
Module 03: Job Requirements						
Task 01: Fill Out Job Application						
Module 04: Job Opportunities						
Task 01: Select Personal Goals						
Module 05: Hand Tools						
Task 01: Identify, Use & Care Hand Tools						
Module 06: Power Equipment						
Task 01: Identify Shop Power Equipment						
Task 02: Lift Vehicle						
Module 07: Lubrication Service						
Task 01: Change Engine Oil & Filter						
Task 02: Lubricate Chassis						
Module 08: Wheel Bearing						
Task 01: Repack Front Wheel Bearings						
Module 09: Tire Service						
Task 01: Rotate Tires						
Task 02: Repair a Leaking Tire						
Task 03: Balance Wheels						

COMMENTS:

	1	2	3	4	5	Meets Per. Obj.
UNIT 02: CHASSIS AND FRAME						
Module 01: Drum Brakes						
Task 01: R & R Brake Shoes						
Task 02: R & R Parking Brake Cable						
Module 02: Disc Brakes						
Task 01: R & R Disc Brake, Caliper Pads and Rotor						
Module 03: Hydraulics						
Task 01: R & R Brake Lines						
Task 02: R & R Wheel Cylinder						
Task 03: R & R Master Cylinder						
Task 04: R & R Power Brake Assist Unit						
Task 05: R & R Proportioning Valve						
Task 06: Overhaul a Master Cylinder						
Task 07: Recondition Wheel Cylinder						
Task 08: Overhaul Disc Brake Caliper						
Task 09: Machine Brake Drums						
Task 10: Machine a Disc Brake Rotor						
Module 04: Suspension						
Task 01: R & R Shock Absorbers						
Task 02: Measure Standing Height						
Task 03: Check Front End for Wear						
Task 04: R & R Front End Linkage						
Task 05: R & R Ball Joints						
Task 06: R & R Control Arms						
Task 07: R & R Coil Springs						
Task 08: R & R Leaf Spring						
Task 09: R & R Torsion Bar						
Module 05: NYS Inspection						
Task 01: Perform State Inspection						

UNIT 02: CHASSIS AND FRAME contd.

• Module 06: Alignment

Task 01: Align Front End

- Module 07: Steering

Task 01: Adjust Pitman Arm Preload

Task 02: Check Oil Pressure

Task 03: R & R Power Steering Hose

Task 04: R & R Power Steering Pump

Task 05: R & R Steering Box

1	2	3	4	5	Meets Per. Obj.

COMMENTS:

	1	2	3	4	5	Meets Per. Obj.
UNIT 03: POWER PLANT						
Module 01: Liquid Cooling						
Task 01: Inspect and Test						
Task 02: Drain, Flush & Refill						
Task 03: R & R Minor Parts						
Task 04: R & R Major Parts						
Module 02: Carburetor						
Task 01: Service Carburetor						
Task 02: Overhaul Carburetor (one barrel)						
Task 03: Overhaul Carburetor (two barrel)						
Task 04: Overhaul Carburetor (four barrel)						
Module 03: Storage & Delivery						
Task 01: Service Fuel Storage & Delivery System						
Module 04: Fuel Injection						
Task 01: Service Fuel Injection System						
Module 05: Primary Circuit						
Task 01: Test the Primary Ignition Circuit						
Task 02: Replace and/or Adjust Primary Circuit Component						
Task 03: Overhaul Distributor						
Module 06: Secondary Circuit						
Task 01: Service Ignition Secondary Components						
Module 07: Tune Up & Diagnosis						
Task 01: Perform Minor Tune Up						
Task 02: Connect & Program an Analyscope						
Task 03: Diagnose an Engine Electronically						

	1	2	3	4	5	Meets Per. Obj.
UNIT 03: POWER PLANT contd.						
Module 08: Electronic Ignition						
Task 01: Select Proper Test Equipment & Diagnose Autolite Electronic Ignition Problems						
Task 02: R & R Components of Autolite Electronic Ignition System						
Task 03: Test Components of Chrysler Electronic Ignition System						
Task 04: Test GM "HEI" Distributor Assembly & Coil Assembly						
Module 09: Exhaust System						
Task 01: R & R Minor Parts						
Task 02: R & R Major Parts						
Module 10: Emission Control						
Task 01: Identify & Test Emission Controls						
Module 11: Short Block						
Task 01: Service Timing Chain & Camshaft						
Task 02: Service Pistons & Rings						
Task 03: R & R Crankshaft						
Task 04: Machine the Short Block						
Module 12: Valve Systems						
Task 01: R & R Rocker Arms						
Task 02: R & R Cylinder Arms						
Task 03: Service Cylinder Head						
Task 04: Machine & Measure						

COMMENTS:

	1	2	3	4	5	Meets Per. Obj.
UNIT 04: ELECTRICAL						
Module 01: Lights						
Task 01: Test Electrical System						
Task 02: R & R Components of Lighting System						
Module 02: Storage Battery						
Task 01: Start an Engine Using Booster Cable						
Task 02: Service & Test Battery						
Module 03: Charging System						
Task 01: Test, R & R Components of Charging System						
Task 02: Test & Overhaul Automotive Alternator						
Module 04: Starting System						
Task 01: Test, Diagnose, R & R Components of the Starting System						
Task 02: Overhaul Starter						
Module 05: Instruments						
Task 01: Test Instruments						
Task 02: R & R Indicators						
Module 06: Power Accessories						
Task 01: Test, R & R Defective Components of Power Antenna						
Task 02: Test, Repair, Adjust or Replace Components of Power Seats						
Task 03: Test, Repair or Replace Defective Components of Power Windows						

COMMENTS:

	1	2	3	4	5	Meets Per. Obj.
UNIT 05: DRIVE LINE						
Module 01: Drive Shaft						
Task 01: R & R Universal Joint						
Task 02: Balance & Correct Angle of Drive Shaft						
Task 03: R & R Constant Velocity Joint						
Module 02: Rear Assembly						
Task 01: R & R Differential Assembly						
Task 02: Overhaul Differential Assembly						
Task 03: R & R Axle and Axle Bearing & Seal						
Task 04: R & R Axle & Axle Bearing						
Module 03: Clutch Assembly						
Task 01: R & R Clutch						
Module 04: Manual Transmission						
Task 01: R & R Manual Transmission						
Task 02: Overhaul Manual Transmission						
Module 05: Automatic Transmission						
Task 01: R & R Automatic Transmission						
Task 02: Overhaul Transmission						
Task 03: R & R Fluid, Filter, Seal & Gasket						
Task 04: Adjust Bands						
Task 05: Adjust Linkage						
Task 06: Pressure Test Transmission						

COMMENTS:

	1	2	3	4	5	Meets Per. Obj.
UNIT 06: BODY MECHANICAL						
Module 01: Body Adjustments						
Task 01: Make Minor Exterior Body Adjustments on Station Wagon						
Task 02: Make Windshield Wiper Repairs						
Task 03: Make Minor Interior Body Adjustments						
Task 04: Perform Major Door Alignment						
Module 02: Glass Adjustments						
Task 01: Perform Necessary Glass Adjustments						
Module 03: Interior Appearance						
Task 01: Clean/Polish Interior Surfaces						
Module 04: Exterior Appearance						
Task 01: Clean and Polish Exterior						
Task 02: Clean and Treat Vinyl Top						

COMMENTS:

	1	2	3	4	5	Meets Per. Obj.
UNIT 07: ACCESSORIES						
Module 01: Heater						
Task 01: Service and Test Heater						
Module 02: Air Conditioner						
Task 01: Test Operation of Air Conditioner						
Task 02: Evacuate and Charge Air Conditioner						
Task 03: R & R Components						
Task 04: Overhaul Air Conditioner Compressor						
Module 03: Speed Control Devices						
Task 01: Test and Adjust Speed Control Devices						
Module 04: Rear Defogger/Defroster						
Task 01: Test, Repair or Replace						

COMMENTS:

TITLE: DAILY PROGRESS REPORT

GOAL: To record daily progress of student.

PURPOSE:

1. To record ISSOE Major Objective code number for the student reporting system.
2. To verify students daily task assignment or assignments.
3. To evaluate, (Q) the students daily performance, averaged weekly, (CUM $\bar{Q}$).
4. To record time consumed for performance as a comparison to time in the criteria of the Major Objective.

NASSAU BOCES
AUTOMOTIVE MECHANICS

Week From _____ To _____ Session: _____ AM _____ PM
Student _____ Teacher(s) _____

DAILY PROGRESS REPORT

DAY	ISSOE CODE #	TASK	Q	Time	
				In	Out
MON Date					
TUES Date					
WED Date					
THURS Date					
FRI Date					
		CUM Q			

COMMENTS: _____

SIGNATURES

Student _____ Teacher _____

APPENDIX E
MANAGEMENT SYSTEM

ISSOE

THE INSTRUCTIONAL SUPPORT SYSTEM FOR OCCUPATIONAL EDUCATION

THE STUDENT REPORTING AND INSTRUCTIONAL MANAGEMENT SYSTEMS

(An Overview for Co-op Coordinators and Occupational Educators)

ISSOE

THE STUDENT REPORTING AND INSTRUCTIONAL MANAGEMENT SYSTEMS

(An Overview for Co-op Coordinators and Occupational Educators)

"The primary purpose of cooperative education is to provide for training purposes on-the-job experience related to the student's course of study and chosen occupational objective...."

"The staff of the job placement services should assist all students in the school system, ages 14 and up, who desire experiences while in school in terms of enriching their education and training."

"All job placements should be related to student need and desire for enrichment and expansion of the schools educational offerings...."

The above statements are excerpts from an article written in the May, 1977 issue of, School Shop magazine. The title of the article was, "How A Job Placement Program Works".

It is the intent of this report to present an overview of the ISSOE Student Reporting and Instructional Management Systems and to propose how it may be utilized with teacher generated materials to cause the role of the Co-op Coordinator in occupational education to be more congruent with the job market, curriculum and student needs. A review of extant documentation on the topics of the ISSOE reporting system was conducted by Cornell University in 1976 for the purpose of clarifying the system objectives and identifying constraints and problems associated with the reporting process. The review determined that the ISSOE reporting system was in a pre-paradigm state and that no firm conceptual design existed. The conceptual design that follows is that portion of the Student Reporting System that deals with the intended learning outcomes of students for the job placement market.

The materials and forms that follow in this report were generated as part of my work in the development of an Instructional Management System that incorporated and utilized the Student Reporting System. The product of these systems are a result of the ISSOE Project workshops conducted by Cornell University in 1975 and 1976 and my tenure as an occupational education teacher since 1968.

TITLE: ISSOE DEFINITION OF TERMS

GOAL: To develop mutually agreed upon terminology for use by all involved in ISSOE through-out New York State.

PURPOSE: To eliminate the confusion deriving from the meanings of terms used in curriculum development and implementation.

ACTION: Managers and participants in the ISSOE effort agreed, during the 1976 summer workshop, to accept the following terms and definitions as shown on Page 2.

TABLE OF CONTENTS

Introduction.	i
ISSOE Definition of Terms	1
ISSOE Standardized Format (Blank Copy).	3
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Daily Progress Report	38

COURSE: State-approved course of study; the course consists of modules of instruction essential to the acquisition of competencies expected by the world of work.

UNIT: A logical clustering of related modules of instruction.

CODE: The first four digits, 1732 (A.M.) and 1433 (O.T.), identify the program area and course. The following pairs of digits represent unit, module and major objective.

MODULE: A portion of the course which addresses related tasks drawn from occupational analysis expressed in performance terms. Each module contains one or more tasks and major objectives, enabling objectives, suggested instructional content and criterion-referenced measurement.

TASK: An activity which has a definite beginning and ending, and is performed within a limited period of time by an individual. One or more tasks are included in each module.

MAJOR OBJECTIVE

A statement of what the student should be able to do, the conditions under which task will be performed, and the standards for evaluating the performance. The achievement of a major objective will be reported as a component of the student's employability profile.

(2)

ENABLING OBJECTIVES

A subordinate objective which describes in performance terms a cognitive, affective, and/or psychomotor skill which the student will need to accomplish the major objective. Achievement of an enabling objective is not reported; performance and recording of this achievement is left to the discretion of the instructor.

SUGGESTED INSTRUCTIONAL CONTENT

A brief listing of suggested demonstrations and points of information which the instructor may wish to employ to assist the student in meeting the major objective.

TITLE: ISSOE STANDARDIZED FORMAT (Blank Copy)

GOAL: To be used by all Occupational Education personnel when designing, writing, and implementing curriculum in all program areas through-out New York State.

PURPOSE: To foster the use of:

- a. Standardized curriculum guidelines.
- b. Performance based education as a mode.
- c. Performance based criteria for evaluation of student performance.
- d. The ISSOE coding system for the Student Reporting System.

ACTION: This format was adopted by teachers during the 1976 summer workshop. This uniform format was tested and found acceptable in four occupational areas during 1976-77. At present, eight occupational areas have adopted this format.

COURSE:

UNIT:

CODE:

MODULE:

TASK:

MAJOR OBJECTIVE

ENABLING OBJECTIVES

SUGGESTED INSTRUCTIONAL CONTENT

(4)

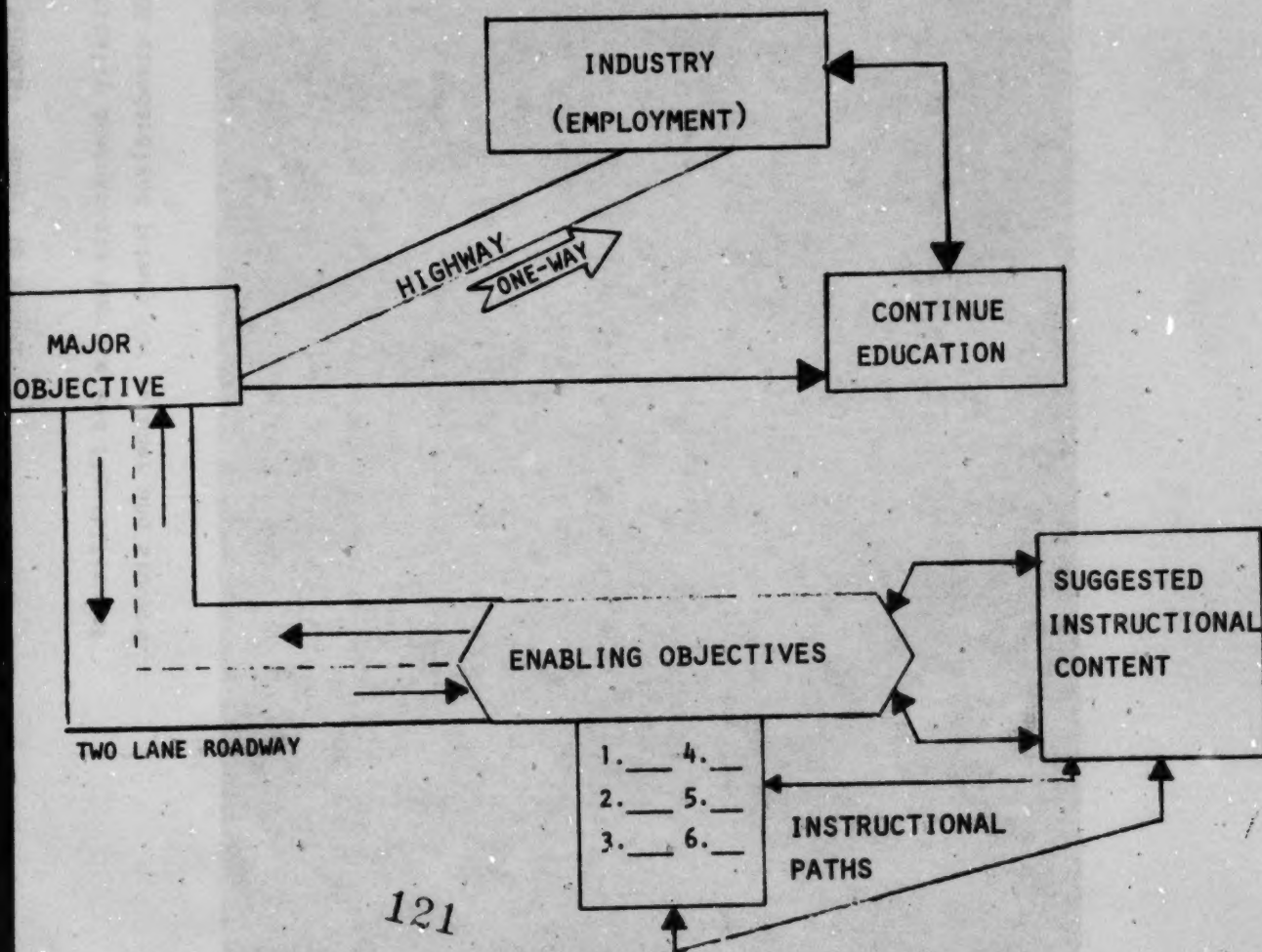
TITLE: ISSOE - STUDENT JOURNEY TO FUTURE

GOAL: To graphically demonstrate the use and flexibility of the ISSOE standardized format for teacher and student.

PURPOSE: To illustrate the use of the:

- a. Suggested Instructional Content (teacher domain)
- b. Enabling Objectives (student domain for learning)
- c. Major Objective (intended learning outcome of student)
- d. Format as an instrument that allows options for the teacher to manipulate the students' learning process.
- e. Format as an instrument that allows the student options to challenge the Major Objective and meeting its criteria or returning to the Enabling Objectives for further instructions.
- f. Learning process in preparing the student for the job market.

ISSOE-STUDENT JOURNEY TO FUTURE



TITLE: ISSOE STUDENT PERSONALIZED PROGRAM SELECTION

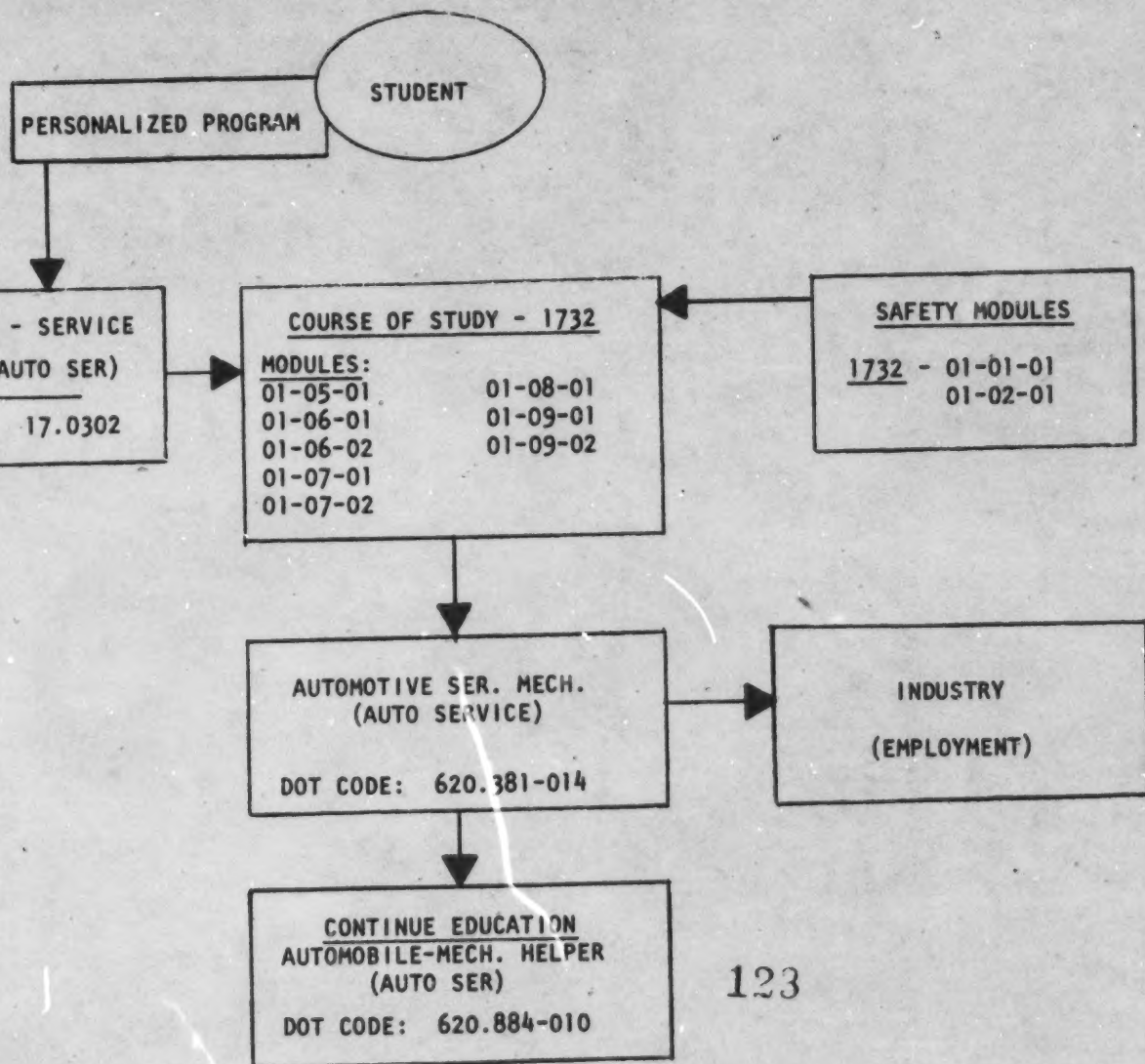
GOAL: To graphically illustrate the use of the USOE and DOT coding systems for student employment training.

PURPOSE: To give teachers, placement counselors, co-op coordinators and administration the option for preparing a personalized course of study for those students who are:

- a. Seniors seeking employment in a specific field or area.
- b. Late entrants into a course of study who wish to enter the "world of work" before graduation.
- c. Special occupation students who have a variety of needs to be met.
- d. Desirous of being co-oped into the employment market.

ISSOE

STUDENT PERSONALIZED PROGRAM SELECTION



(8)

ISSOE CURRICULUM
STUDENT PERSONALIZED PROGRAM
SELECTION PORTFOLIO

Student _____ Date _____
Subject Area _____ D.O.T.Code _____

Teacher Approval _____ Date _____
P.P.S. Approval _____ Date _____
Administrator Approval _____ Date _____

D.O.T. CODE NUMBER _____

Employment Title _____

ISSOE CODE #

[illegible]

TITLE: ISSOE CLASS PROGRESS CHART

GOAL: A computerized output as to the skills progress of the student population in a program.

PURPOSE: For use by:

- a. Teachers who desire to know the skills progress of the entire class.
- b. Co-op Coordinators in assessing the skills progress of the entire class, student by student.
- c. Guidance personnel in assessing class progress.
- d. Administrators in assessing student progress.

ISSOE
PROGRESS CHART
AUTOMOTIVE MECHANICS PROGRAM

[illegible]

R & R BRAKE SHOES
R & R PARKING BRAKE CABLE
R & R DISC BRAKE CALIPER
R & R BRAKE LINE
R & R WHEEL CYLINDER
R & R MASTER CYLINDER
R & R POWER BRAKE ASSIST UNIT
OVERHAUL MASTER CYLINDER
RECONDITION MASTER CYLINDER
OVERHAUL WHEEL CYLINDER
MACHINE DISC BRAKE CALIPER
MACHINE BRAKE DRUMS & DISCS

(12)

TITLE: STUDENT EMPLOYABILITY PROFILE

GOAL: A computerized output of a student's Employability Profile.

PURPOSE: For use by:

- a. Teachers who desire to know an individual student's skills progress.
- b. Co-op Coordinators in assessing student skills for employment potential.
- c. Guidance counselors in assessing students' skills progress for parents, home schools, etc.
- d. Students who desire to know their skills progress.
- e. Employers who desire to know the potential employees skills progress.

NOTE: The Cum Q Score grading system is to show the feasibility of including a numerical grade in the computer output. The purpose of this design is to satisfy a need that exists in the total educational process.

The Cum Q Score design is by no means perfected. The feasibility of such a system is fact. The agreement by those in Academic and Occupational Education as to its design and implementation is yet to be resolved.

FIGURE 2: STUDENT EMPLOYABILITY PROFILE

1. STUDENT NAME	JOHN SMITH																								
2. D.O.T. CODE	Brakeman 620.281-034																								
3. TASKS ACQUIRED AND CUM SCORE	<table> <tr><td>1. R & R Brake Shoes</td><td>(6)</td></tr> <tr><td>2. R & R Parking Brake Cable</td><td>(6)</td></tr> <tr><td>3. R & R Disc Brake Caliper</td><td>(9)</td></tr> <tr><td>4. R & R Brake Lines</td><td>(8)</td></tr> <tr><td>5. R & R Wheel Cylinder</td><td>(8)</td></tr> <tr><td>6. R & R Master Cylinder</td><td>(6)</td></tr> <tr><td>7. R & R Power Brake Assist</td><td>(8)</td></tr> <tr><td>8. R & R Proportioning Valve</td><td>(7)</td></tr> <tr><td>9. Overhaul Master Cylinder</td><td>(6)</td></tr> <tr><td>10. Recondition Wheely Cylinder</td><td>(8)</td></tr> <tr><td>11. Overhaul Disc Brake Caliper</td><td>(8)</td></tr> <tr><td>12. Machine Brake Drum & Disc</td><td>(6)</td></tr> </table>	1. R & R Brake Shoes	(6)	2. R & R Parking Brake Cable	(6)	3. R & R Disc Brake Caliper	(9)	4. R & R Brake Lines	(8)	5. R & R Wheel Cylinder	(8)	6. R & R Master Cylinder	(6)	7. R & R Power Brake Assist	(8)	8. R & R Proportioning Valve	(7)	9. Overhaul Master Cylinder	(6)	10. Recondition Wheely Cylinder	(8)	11. Overhaul Disc Brake Caliper	(8)	12. Machine Brake Drum & Disc	(6)
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2. R & R Parking Brake Cable	(6)																								
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10. Recondition Wheely Cylinder	(8)																								
11. Overhaul Disc Brake Caliper	(8)																								
12. Machine Brake Drum & Disc	(6)																								
4. CUM Q SCORE	7.6																								

TITLE: STUDENT USE - WORK ORDER

GOAL: To promote Psychomotor, Cognitive and Affective learning.

PURPOSE: For use in:

- a. Simulating industrial needs through information required on WORK ORDER.
- b. Promoting cognitive learning through use of trade manuals and specification charts.
- c. Promoting writing skills.
- d. Promoting reading skills.
- e. Helping student become organized.
- f. Promoting a change in the students affective domain of learning.

(TO BE DISPLAYED ON VEHICLE)

(16)

TITLE: EMPLOYABILITY PORTFOLIO INFORMATION SHEET

GOAL: To make the students aware of the materials and information needed when applying for employment.

PURPOSE: To be used:

- a. As a hand-out sheet to students for reference.
- b. By teacher in preparing students for employment.
- c. By placement counselors and Co-op coordinators in preparing students for employment.
- d. To promote Psychomotor, Cognitive and Affective learning domains of students.
- e. To cause a student to become organized.

STUDENT PERFORMANCE BASED EVALUATION
ISSOE CURRICULUM

Instructor: Mr. Zuzio
September 26, 1977

Automotive Mechanics
"Employability Portfolio"

The following items are to be obtained and placed into your
"Employability Portfolio".

1. A copy of your social security number.
2. A copy of your birth certificate.
3. At least three personal letters of reference.
4. Complete records of your employment to date.
5. Complete records of your educational history.
6. Any personal information that will aid you in properly filling out an employment application.
7. If needed; Working papers.

Letters of reference may be obtained from the following sources:

- | | |
|----------------|---------------|
| a. Businessmen | f. Policemen |
| b. Ministers | g. Doctors |
| c. Rabbis | h. Lawyers |
| d. Priests | i. Teachers |
| e. Firemen | j. Principals |

Any other people who are in the position to give you a good character reference may be used.

TITLE: STANDARDIZED FORMAT

GOAL: To standardize curriculum guidelines for use through-out New York State.

PURPOSE: For use in:

- a. Identifying course of study.
- b. Identifying unit of instruction.
- c. Identifying module and task statement.
- d. Coding module, task and major objective.
- e. Informing and directing students as to what is expected from them by way of performance.
- f. Identifying performance criteria as stated in the Major Objective.
- g. The evaluation of the student's performance by use of the Criterion-Referenced Measurement Sheet.
(On the reverse side of the Format.)
- h. Setting uniform criterion guidelines through-out New York State.

CRITERION-REFERENCED MEASUREMENT SHEET

CHECK ONE ONLY

NAME _____ DATE _____ MET MAJOR OBJECTIVE ☐
TEACHER _____ CLASS _____ NEEDS FURTHER INSTRUCTION ☐

MODULE: JOB REQUIREMENTS 17320103

REMARKS:

MAJOR OBJECTIVE: 01

Given a typical job application form, the student will:

- . print all information legibly
- . print accurate information
- . sign legibly
- . complete form neatly

Did student, when applicable:

1. Observe safety standards?
2. Use trade acceptable standards?
3. Meet manufacturer's specs?
4. Use proper procedure?
5. Use proper tools?
6. Observe good housekeeping practices?
7. Complete necessary paper work?
8. Complete the job in an acceptable time period based on flat rate time?

(20)

COURSE: Auto Mechanics
UNIT: INTRODUCTION TO AUTO MECHANICS
CODE: 17320103

MODULE: JOB REQUIREMENTS
TASK: Fill Out Job Application

MAJOR OBJECTIVE

- 01 Given a typical job application form, the student will:
- . print all information legibly
 - . print accurate information
 - . sign legibly
 - . complete form neatly.

ENABLING OBJECTIVES

- Given a typical job application form, the student will:
- . review examples of employer requirements
 - . list five traits an employer may observe as acceptable
 - . practice filling out a typical job application.

SUGGESTED INSTRUCTIONAL CONTENT

Demonstration:

- . Filling out job application

Information:

- . Qualities an employer seeks in a job applicant:
 - Attitude
 - Appearance
 - Punctuality
 - Basic tool kits
- . Application forms:
 - Variety of applications
 - Consistency in printing
 - References
 - Basic Skills
 - Education
 - Transportation

TITLE: APPLICATION FOR EMPLOYMENT

GOAL: To familiarize students with employment application informational requirements.

PURPOSE: For use with:

- a. Task statement #010301, fill out Job Application.
- b. Criterion-Referenced Measurement Sheet (CRMS) as the evaluative instrument.
- c. The Enabling Objectives as for student training and practice.
- d. The development of the, Psychomotor, Cognitive, and Affective learning domains.
- e. Preparing a student for the first job interview with a placement counselor or Co-op Coordinator.

APPLICATION FOR EMPLOYMENT

(PLEASE PRINT PLAINLY)

The Civil Rights Act of 1964 prohibits discrimination in employment because of race, color, religion or national origin. Public Law 90-202 prohibits discrimination because of age. The laws of some states prohibit some or all of the above mentioned types of discrimination.

Date: _____

PERSONAL

Name _____ Social Security No. _____
Last First Middle Initial

Present address _____
No. Street City State Zip

How many years have you lived at this address? _____ Telephone No. () _____
Area

Previous address _____ How long did you live there? _____
No. Street City State Zip

Job(s) applied for 1. _____ Rate of pay expected \$ _____ per _____
2. _____ Rate of pay expected \$ _____ per _____

How did you learn of this opening? _____

Do you want to work ☐ Full-Time or ☐ Part-time. Specify days and hours if part-time _____

Have you worked for us before? _____ If yes, when? _____

List any friends or relatives working for us _____

If hired, on what date will you be available to start work? _____

Are there any other experiences, skills, or qualifications which you feel would especially fit you for work with the Company? _____

If hired, do you have a reliable means of transportation to get to work? _____

Do you have any physical handicaps which would prevent you from performing specific kinds of work? _____ If yes, describe the defect(s) and explain the work limitations. _____

Have you had a serious illness in the past 5 years? ☐ No ☐ Yes (describe) _____

Have you ever received compensation for injuries? ☐ No ☐ Yes (explain) _____

Have you ever been convicted of a crime, excluding misdemeanors and summary offenses? ☐ No ☐ Yes

If yes, describe in full _____

Person to be notified in case of accident or emergency

Name _____ Phone Number _____

Address _____

EDUCATIONAL BACKGROUND

TYPE OF SCHOOL	NAME AND ADDRESS	How Many Years Attended	Graduated	COURSE OR MAJOR
GRAMMAR OR GRADE			☐ Yes ☐ No	
HIGH SCHOOL			☐ Yes ☐ No	
COLLEGE			☐ Yes ☐ No	
POST GRADUATE			☐ Yes ☐ No	
BUSINESS OR TRADE			☐ Yes ☐ No	
OTHER			☐ Yes ☐ No	

MILITARY SERVICE RECORD

Have you ever served in the armed forces? ☐ Yes ☐ No If yes, what branch? _____

Dates of duty: From _____ To _____ Rank at discharge _____
Month Day Year Month Day Year

What were your duties in the Service (include special training and duty station)? _____

Have you had any schooling under the G. I. Bill of Rights? _____ If yes, describe. _____

TO THE APPLICANT:

Do not answer any *italicized* question below the double line unless the employer has checked the box next to the question. A check indicates that the information requested is needed for 1) a bona fide occupational qualification, 2) is in compliance with national security laws, or 3) other legally permissible reasons.

☐ *Are you over 21 years of age?* ☐ Yes ☐ No If no, employment is subject to verification that you are of minimum legal age.

☐ *When were you born?* _____
Month Day Year

☐ *How old are you?* _____

☐ Sex: ☐ Male ☐ Female

☐ Height: _____ ft. _____ in.

☐ Weight: _____ lbs.

☐ What is your marital status ☐ Single ☐ Engaged ☐ Married ☐ Separated ☐ Divorced ☐ Widowed

☐ When were you married? _____
Month Day Year

☐ How many dependents do you have (including yourself)? _____

☐ Are you a United States Citizen? ☐ Yes ☐ No

☐ Have you registered for the Draft? ☐ Yes ☐ No

☐ What is your Selective Service classification? _____

☐ Please tell us when you attended school.

☐ Elementary . . . From _____ to _____ ☐ College From _____ to _____

☐ High School . . . From _____ to _____ ☐ (other) . . . From _____ to _____

☐ Have you ever been bonded? ☐ Yes ☐ No If yes, for what job(s)? _____

☐ Employer may ask other bona fide occupational questions below:

☐ _____

PERSONAL REFERENCES

(Excluding Former Employers or Relatives)

Name and Occupation	Address	Phone Number
1. _____	_____	
2. _____	_____	
3. _____	_____	

PRIOR WORK HISTORY (LIST IN ORDER, LAST OR PRESENT EMPLOYER FIRST)

DATES		NAME AND ADDRESS OF EMPLOYER	RATE OF PAY		SUPERVISOR'S NAME AND TITLE	REASON FOR LEAVING
FROM	TO		START	FINISH		

Describe in detail the work you did.						

DATES		NAME AND ADDRESS OF EMPLOYER	RATE OF PAY		SUPERVISOR'S NAME AND TITLE	REASON FOR LEAVING
FROM	TO		START	FINISH		

Describe in detail the work you did.						

DATES		NAME AND ADDRESS OF EMPLOYER	RATE OF PAY		SUPERVISOR'S NAME AND TITLE	REASON FOR LEAVING
FROM	TO		START	FINISH		

Describe in detail the work you did.						

DATES		NAME AND ADDRESS OF EMPLOYER	RATE OF PAY		SUPERVISOR'S NAME AND TITLE	REASON FOR LEAVING
FROM	TO		START	FINISH		

Describe in detail the work you did.						

May we contact the employers listed above? _____ If not, indicate below which one(s) you do not wish us to contact

Occasionally the form of an application blank makes it difficult for an individual to adequately summarize his complete background. To assist us in finding the proper position for you in our company, use the space below to summarize any additional information necessary to describe your full qualifications.

Thank you for completing this application form and for your interest in employment with us. We would like to assure you that your opportunity for employment with this company will be based only on your merit and on no other consideration.

PLEASE READ CAREFULLY APPLICANT'S CERTIFICATION AND AGREEMENT

I hereby certify that the facts set forth in the above employment application are true and complete to the best of my knowledge. I understand that if employed, falsified statements on this application shall be considered sufficient cause for dismissal. You are hereby authorized to make any investigation of my personal history and financial and credit record through any investigative or credit agencies or bureaus of your choice.*

Signature of Applicant _____

*NOTE: The Provisions of the Fair Credit Reporting Act may be applicable if a credit report on the applicant is obtained and considered.

DO NOT WRITE BELOW THIS LINE

INTERVIEW ☐ YES ☐ NO Date _____ Hour _____

Result of Interview _____

Acceptable for Employment? _____ Starting Rate _____ Starting Date _____ Shift _____

Occupation _____ Dept. _____ Clock No. _____

Interviewed by _____ Employed by _____

_____ Approved by _____

This Application For Employment Form is sold for general use throughout the United States. Amsterdam Printing and Litho Corp. assumes no responsibility for the inclusion in said form of any questions which, when asked by the Employer of the Job Applicant, may violate State and/or Federal Law.

TITLE: AUTOMOTIVE MECHANICS - STUDENT ACHIEVEMENT RECORD

GOAL: A personal record of a student's achievements.

PURPOSE: For use:

- a. In motivating the student.
- b. In keeping a cumulative record of the student's skills achievement.
- c. As a student's permanent record of his or her saleable skills. It becomes the student's personal property.
- d. By placement counselors and co-op coordinators in assessing the student's marketable skills.
- e. In placing a student in a job related to the student's desire and needs for enriching the schools educational offerings.

BOARD OF COOPERATIVE EDUCATIONAL SERVICES
SOUTHWEST CENTER

AUTOMOTIVE MECHANICS

STUDENT ACHIEVEMENT RECORD

Students Name
AM PM

Session

Teachers Name

Home School

AUTOMOTIVE MECHANICS (1732)

10377

	1	2	3	4	5	Meets Per. Obj.
UNIT 01: INTRODUCTION TO AUTOMOTIVE MECHANICS						
Module 01: Shop Procedures						
Task 01: Identify Shop Hazards						
Module 02: Personal Safety						
Task 01: Identify Personal Safety						
Module 03: Job Requirements						
Task 01: Fill Out Job Application						
Module 04: Job Opportunities						
Task 01: Select Personal Goals						
Module 05: Hand Tools						
Task 01: Identify, Use & Care Hand Tools						
Module 06: Power Equipment						
Task 01: Identify Shop Power Equipment						
Task 02: Lift Vehicle						
Module 07: Lubrication Service						
Task 01: Change Engine Oil & Filter						
Task 02: Lubricate Chassis						
Module 08: Wheel Bearing						
Task 01: Repack Front Wheel Bearings						
Module 09: Tire Service						
Task 01: Rotate Tires						
Task 02: Repair a Leaking Tire						
Task 03: Balance Wheels						

COMMENTS:

	1	2	3	4	5	Meets Per. Obj.
UNIT 02: CHASSIS AND FRAME						
Module 01: Drum Brakes						
Task 01: R & R Brake Shoes						
Task 02: R & R Parking Brake Cable						
Module 02: Disc Brakes						
Task 01: R & R Disc Brake, Caliper Pads and Rotor						
Module 03: Hydraulics						
Task 01: R & R Brake Lines						
Task 02: R & R Wheel Cylinder						
Task 03: R & R Master Cylinder						
Task 04: R & R Power Brake Assist Unit						
Task 05: R & P Proportioning Valve						
Task 06: Overhaul a Master Cylinder						
Task 07: Recondition Wheel Cylinder						
Task 08: Overhaul Disc Brake Caliper						
Task 09: Machine Brake Drums						
Task 10: Machine a Disc Brake Rotor						
Module 04: Suspension						
Task 01: R & R Shock Absorbers						
Task 02: Measure Standing Height						
Task 03: Check Front End for Wear						
Task 04: R & R Front End Linkage						
Task 05: R & R Ball Joints						
Task 06: R & R Control Arms						
Task 07: R & R Coil Springs						
Task 08: R & R Leaf Spring						
Task 09: R & R Torsion Bar						
Module 05: NYS Inspection						
Task 01: Perform State Inspection						

UNIT 02: CHASSIS AND FRAME contd.

Module 06: Alignment

Task 01: Align Front End

Module 07: Steering

Task 01: Adjust Pitman Arm Preload

Task 02: Check Oil Pressure

Task 03: R & R Power Steering Hose

Task 04: R & R Power Steering Pump

Task 05: R & R Steering Box

1	2	3	4	5	Meets Per. Obj.

COMMENTS:

AUTOMOTIVE MECHANICS (1732)

10377

	1	2	3	4	5	Meets Per. Obj.
UNIT 03: POWER PLANT						
Module 01: Liquid Cooling						
Task 01: Inspect and Test						
Task 02: Drain, Flush & Refill						
Task 03: R & R Minor Parts						
Task 04: R & R Major Parts						
Module 02: Carburetor						
Task 01: Service Carburetor						
Task 02: Overhaul Carburetor (one barrel)						
Task 03: Overhaul Carburetor (two barrel)						
Task 04: Overhaul Carburetor (four barrel)						
Module 03: Storage & Delivery						
Task 01: Service Fuel Storage & Delivery System						
Module 04: Fuel Injection						
Task 01: Service Fuel Injection System						
Module 05: Primary Circuit						
Task 01: Test the Primary Ignition Circuit						
Task 02: Replace and/or Adjust Primary Circuit Component						
Task 03: Overhaul Distributor						
Module 06: Secondary Circuit						
Task 01: Service Ignition Secondary Components						
Module 07: Tune Up & Diagnosis						
Task 01: Perform Minor Tune Up						
Task 02: Connect & Program an Analyscope						
Task 03: Diagnose an Engine Electronically						

AUTOMOTIVE MECHANICS (1732)

10377

	1	2	3	4	5	Meets Per. Obj.
UNIT 03: POWER PLANT contd.						
Module 08: Electronic Ignition						
Task 01: Select Proper Test Equipment & Diagnose Autolite Electronic Ignition Problems						
Task 02: R & R Components of Autolite Electronic Ignition System						
Task 03: Test Components of Chrysler Electronic Ignition System						
Task 04: Test GM "HEI" Distributor Assembly & Coil Assembly						
Module 09: Exhaust System						
Task 01: R & R Minor Parts						
Task 02: R & R Major Parts						
Module 10: Emission Control						
Task 01: Identify & Test Emission Controls						
Module 11: Short Block						
Task 01: Service Timing Chain & Camshaft						
Task 02: Service Pistons & Rings						
Task 03: R & R Crankshaft						
Task 04: Machine the Short Block						
Module 12: Valve Systems						
Task 01: R & R Rocker Arms						
Task 02: R & R Cylinder Arms						
Task 03: Service Cylinder Head						
Task 04: Machine & Measure						

COMMENTS:

	1	2	3	4	5	Meets Per. Obj.
UNIT 04: ELECTRICAL						
Module 01: Lights						
Task 01: Test Electrical System						
Task 02: R & R Components of Lighting System						
Module 02: Storage Battery						
Task 01: Start an Engine Using Booster Cable						
Task 02: Service & Test Battery						
Module 03: Charging System						
Task 01: Test, R & R Components of Charging System						
Task 02: Test & Overhaul Automotive Alternator						
Module 04: Starting System						
Task 01: Test, Diagnose, R & R Components of the Starting System						
Task 02: Overhaul Starter						
Module 05: Instruments						
Task 01: Test Instruments						
Task 02: R & R Indicators						
Module 06: Power Accessories						
Task 01: Test, R & R Defective Components of Power Antenna						
Task 02: Test, Repair, Adjust or Replace Components of Power Seats						
Task 03: Test, Repair or Replace Defective Components of Power Windows						

COMMENTS:

	1	2	3	4	5	Meets Per. Obj.
UNIT 05: DRIVE LINE						
Module 01: Drive Shaft						
Task 01: R & R Universal Joint						
Task 02: Balance & Correct Angle of Drive Shaft						
Task 03: R & R Constant Velocity Joint						
Module 02: Rear Assembly						
Task 01: R & R Differential Assembly						
Task 02: Overhaul Differential Assembly						
Task 03: R & R Axle and Axle Bearing & Seal						
Task 04: R & R Axle & Axle Bearing						
Module 03: Clutch Assembly						
Task 01: R & R Clutch						
Module 04: Manual Transmission						
Task 01: R & R Manual Transmission						
Task 02: Overhaul Manual Transmission						
Module 05: Automatic Transmission						
Task 01: R & R Automatic Transmission						
Task 02: Overhaul Transmission						
Task 03: R & R Fluid, Filter, Seal & Gasket						
Task 04: Adjust Bands						
Task 05: Adjust Linkage						
Task 06: Pressure Test Transmission						

COMMENTS:

	1	2	3	4	5	Meets Per. Obj.
UNIT 06: BODY MECHANICAL						
Module 01: Body Adjustments						
Task 01: Make Minor Exterior Body Adjustments on Station Wagon						
Task 02: Make Windshield Wiper Repairs						
Task 03: Make Minor Interior Body Adjustments						
Task 04: Perform Major Door Alignment						
Module 02: Glass Adjustments						
Task 01: Perform Necessary Glass Adjustments						
Module 03: Interior Appearance						
Task 01: Clean/Polish Interior Surfaces						
Module 04: Exterior Appearance						
Task 01: Clean and Polish Exterior						
Task 02: Clean and Treat Vinyl Top						

COMMENTS:

	1	2	3	4	5	Meets Per. Obj.
UNIT 07: ACCESSORIES						
Module 01: Heater						
Task 01: Service and Test Heater						
Module 02: Air Conditioner						
Task 01: Test Operation of Air Conditioner						
Task 02: Evacuate and Charge Air Conditioner						
Task 03: R & R Components						
Task 04: Overhaul Air Conditioner Compressor						
Module 03: Speed Control Devices						
Task 01: Test and Adjust Speed Control Devices						
Module 04: Rear Defogger/Defroster						
Task 01: Test, Repair or Replace						

COMMENTS:

TITLE: DAILY PROGRESS REPORT

GOAL: To record daily progress of student.

PURPOSE:

1. To record ISSOE Major Objective code number for the student reporting system.
2. To verify students daily task assignment or assignments.
3. To evaluate, (Q) the students daily performance, averaged weekly, (CUM $\bar{Q}$).
4. To record time consumed for performance as a comparison to time in the criteria of the Major Objective.

NASSAU BOCES
AUTOMOTIVE MECHANICS

Week From _____ To _____

Session: _____ AM _____ PM

Student _____ Teacher(s) _____

DAILY PROGRESS REPORT

DAY	ISSOE CODE #	TASK	Q	Time	
				In	Out
MON Date					
TUES Date					
WED Date					
THURS Date					
FRI Date					
CUM Q					

COMMENTS: _____

SIGNATURES

Student _____ Teacher _____

APPENDIX F

ISSUE FORMAT

COURSE:

UNIT:

CODE:

MODULE:

TASK:

MAJOR OBJECTIVE

FORMAT FORM FOR
AUTOMOTIVE MECHANICS AND OFFICE TRAINING

ENABLING OBJECTIVES

SUGGESTED INSTRUCTIONAL CONTENT

160

161

F-1

CRITERION-REFERENCED MEASUREMENT SHEET
(AUTOMOTIVE MECHANICS)

CHECK ONE ONLY

NAME _____ DATE _____

MET MAJOR OBJECTIVE ☐

TEACHER _____ CLASS _____

NEEDS FURTHER INSTRUCTION ☐

MODULE: _____

REMARKS:

MAJOR OBJECTIVE:

Did student, when applicable:

1. Observe safety standards?
2. Use trade acceptable standards?
3. Meet manufacturer's specs?
4. Use proper procedure?
5. Use proper tools?
6. Observe good housekeeping practices?
7. Complete necessary paper work?
8. Complete the job in an acceptable time period based on flat rate time?

APPENDIX G
VALIDATION PROCESS

This validation summary is part of the following report:

ISSOE: Second Phase - Field Testing

Final Report 1976-77, CIOE

Cornell University, Ithaca, N.Y., June 1977.

VALIDATION

The first steps toward validation (do competencies relate to real jobs in the world of work) were performed last year as staff members and project teachers reviewed existing task analysis documents in the two curriculum areas. Task verification by automobile company representatives was conducted during 1975-76.

A major source of validation is that done by teachers as part of the critiquing process. Use of the modules in the classroom will help to establish student validation.

Regional validation of the ISSOE Automotive Mechanics and Office Training curriculum pilot tested during 1976-77, revealed that most of the major objectives are important competencies employers prefer their new employees to have prior to employment. There appeared to be no significant difference in the competencies needed by new automotive mechanics employees in the various regions. (Table 7). Regional automotive employer validation information is not firm enough to make sound statewide comparisons. A very comprehensive validation was conducted in Region 10, but the number of employers contacted was less than ten in Regions 1 and 8.

The ISSOE validation process is charted in Appendix G. Also included is an alternative approach to validation to determine if competencies being taught are realistic to the needs of the world of work.

TABLE 7
ISSOE

CIOE

AUTOMOTIVE MECHANICS TASK VERIFICATION FORM

Check below all tasks performed by automotive mechanics in your area. Also add any tasks not listed. Then identify each task according to the priority rating scale as follows:

- (1) Needed by most entry-level employees
- (2) Desirable to have
- (3) Not needed by entry-level employees

UNIT: CHASSIS AND FRAME (pp. 2-1-1 - 2-7-28) ISSOE Automotive Mechanics Curriculum

TASK:	REGION	1	8	10
Remove & Replace Brake Shoes		1.0	1.0	1.1
R & R Parking Brake Cable		2.0	1.3	1.1
R & R Disc Brake Caliper, Pads and Rotor		1.0	1.0	1.2
R & R Brake Lines		2.0	1.0	1.1
R & R Wheel Cylinder		1.0	1.0	1.1
R & R Master Cylinder		1.0	1.0	1.3
R & R Power Brake Assist Unit		1.0	1.0	1.7
R & R Proportioning Valve		2.0	1.0	1.5
Overhaul a Master Cylinder		2.0	2.0	2.0
Recondition Wheel Cylinder		1.0	1.0	1.5
Overhaul Disc Brake Caliper		1.5	1.0	1.6
Machine Brake Drums and Disc		2.0	2.0	1.8
R & R Shock Absorbers		1.0		1.1
Measure Standing Height		3.0		1.4
Check Front End for Wear		1.0		1.2
R & R Front End Linkage		1.0		1.3
R & R Ball Joints		1.0		1.6

UNIT: CHASSIS AND FRAME (pp. 2-1-1 - 2-7-28) contd.

TASK:	REGION	1	8	10
R & R Control Arms		2.0		2.0
R & R Coil Springs		2.0		1.6
R & R Leaf Spring		1.5		1.5
R & R Torsion Bar		2.0		1.6
Perform State Inspection		1.5		1.5
Align Front End		2.5		2.0
Adjust Pitman Arm Preload				1.8
Check Oil Pressure - Power Steering		1.5		1.6
R & R Power Steering Hose		1.0		1.2
R & R Power Steering Pump		2.0		1.4
R & R Steering Box		2.0		1.5
Additional Tasks Recommended:				

ISSOE

CIOE

AUTOMOTIVE MECHANICS TASK VERIFICATION FORM

Check below all tasks performed by automotive mechanics in your area. Also add any tasks not listed. Then identify each task according to the priority rating scale as follows:

- (1) Needed by most entry-level employees
- (2) Desirable to have
- (3) Not needed by entry-level employees

UNIT: POWER PLANT (pp. 3-1-1 - 3-12-32) ISSOE Automotive Mechanics Curriculum

TASK:	REGION	1	8	10
Inspect and Test Cooling System		1.0	1.0	1.1
Drain, Flush & Refill Cooling System		1.0	1.0	1.1
R & R Minor Parts - Cooling System		1.0	1.0	1.0
R & R Major Parts - Cooling System		1.5	1.0	1.5
Service Carburetor		2.0		1.5
Overhaul Carburetor (one barrel)		2.0		1.8
Overhaul Carburetor (two barrel)		2.0		1.8
Overhaul Carburetor (four barrel)		2.0		2.2
Service Fuel Storage & Delivery System		2.0		1.6
Service Fuel Injection System				2.7
Test the Primary Ignition Circuit		1.0	1.0	1.2
Replace and/or Adjust Primary Circuit Components		1.0	1.0	1.3
Overhaul Distributor		3.0	2.0	1.9
Service Ignition Secondary Components		1.0	1.0	1.5
Perform Minor Tune Up		1.0	1.0	1.2
Connect and Program an Analyoscope		3.0	1.0	1.6
Diagnose an Engine Electronically		3.0	2.0	1.7

UNIT: POWER PLANT (pp. 3-1-1 - 3-12-32) contd.

TASK:	REGION	1	8	10
Select Proper Test Equipment & Diagnose Autolite Electronic Ignition Problems				2.1
R & R Components of Autolite Electronic Ignition System				2.1
Test Components of Chrysler Electronic Ignition System	3.0			2.1
Test G.M. "HEI" Distributor Assembly & Coil Assembly	3.0			2.2
R & R Minor Parts of Exhaust System	1.0			1.2
R & R Major Parts of Exhaust System	1.0			1.5
Identify and Test Emission Controls	2.0			1.5
Service Timing Chain and Camshaft	3.0			2.1
Service Pistons and Rings	3.0			2.3
R & R Crankshaft	3.0			2.6
Machine the Short Block	3.0			2.8
R & R Rocker Arms	1.5			1.5
R & R Cylinder Head	1.5			1.5
Service Cylinder Head	2.0			2.0
Machine and Measure Valve Systems	2.5			2.0
Additional Tasks Recommended:				

ISSOE

CIOE

AUTOMOTIVE MECHANICS TASK VERIFICATION FORM

Check below all tasks performed by automotive mechanics in your area. Also add any tasks not listed. Then identify each task according to the priority rating scale as follows:

- (1) Needed by most entry-level employees
- (2) Desirable to have
- (3) Not needed by entry-level employees

UNIT: ELECTRICAL (pp. 4-1-1 - 4-6-13) ISSOE Automotive Mechanics Curriculum

TASK:	REGION	1	8	10
Test Electrical System		2.0	1.0	1.2
R & R Components of Lighting System		1.5	1.0	1.1
Start an Engine Using Booster Cable		1.0	1.0	1.0
Service and Test Battery		1.0	1.0	1.1
Test, R & R Components of Charging System		1.0	1.0	1.4
Test & Overhaul Automotive Alternator		3.0	1.0	1.6
Test, Diagnose, R & R Components of the Starting System		2.1	1.0	1.6
Overhaul Starter		3.0	1.0	1.9
Test Instruments			1.0	1.9
R & R Indicators			1.0	1.8
Test, R & R Defective Components of Power Antenna		3.0		2.9
Test, Repair, Adjust or Replace Components of Power Seats		3.0		2.8
Test, Repair or Replace Defective Components of Power Windows		3.0		2.6
Additional Tasks Recommended				

ISSOE

CIOE

AUTOMOTIVE MECHANICS TASK VERIFICATION FORM

Check below all tasks performed by automotive mechanics in your area. Also add any tasks not listed. Then identify each task according to the priority rating scale as follows:

- (1) Needed by most entry-level employees
- (2) Desirable to have
- (3) Not needed by entry-level employees

UNIT: DRIVE LINE (pp. 5-1-1 - 5-5-16) ISSOE Automotive Mechanics Curriculum

TASK:	REGION	1	8	10
R & R Universal Joint		1.5	1.0	1.2
Balance & Correct Angle of Drive Shaft			1.0	2.5
R & R Constant Velocity Joint		3.0	1.0	2.2
R & R Differential Assembly		2.0	1.0	2.3
Overhaul Differential Assembly		3.0	1.0	2.7
R & R Axle & Axle Bearing and Seal		1.5	1.0	1.9
R & R Axle and Axle Bearing		1.5	1.0	1.9
R & R Clutch		1.5	1.0	1.7
R & R Manual Transmission		2.0	1.0	1.8
Overhaul Manual Transmission		2.0	1.0	2.3
R & R Automatic Transmission		3.0	1.0	2.0
Overhaul Automatic Transmission		2.5	3.0	2.6
R & R Fluid, Filter, Seal and Gasket		2.0	1.0	1.6
Adjust Bands		2.5	1.0	2.3
Pressure Test Transmission		2.5	2.0	2.1
Additional Tasks Recommended:				
Adjust Linkage		3.0		1.4

UNIT: BODY MECHANICAL (pp. 6-1-1 - 6-4-8) ISSOE Automotive Mechanics Curriculum

TASK:	REGION	1	8	10
Make Minor Exterior Body Adjustment of Station Wagon				1.9
Make Windshield Wiper Repairs		3.0		1.3
Make Minor Interior Body Adjustments				1.8
Perform Major Door Alignment				1.8
Perform Necessary Glass Adjustments				1.8
Clean/Polish Interior Surfaces				2.0
Clean and Polish the Exterior				2.0
Clean and Treat Vinyl Top				2.0

UNIT: ACCESSORIES (pp. 7-1-1 - 7-4-7) ISSOE Automotive Mechanics Curriculum

TASK:	REGION	1	3	10
Service and Test Heater		2.5		1.6
Test Operation of Air Conditioner		2.0		1.9
Evacuate and Charge Air Conditioner		3.0		2.4
R & R Components		3.0		2.0
Overhaul Air Conditioner Compressor				2.9
Test and Adjust Speed Control Devices				2.6
Test, Repair or Replace Rear Defogger/Defroster		2.5		1.8

Additional Tasks Recommended:

ISSOE

CIOE

AUTOMOTIVE MECHANICS TASK VERIFICATION FORM

Check below all tasks performed by automotive mechanics in your area. Also add any tasks not listed. Then identify each task according to the priority rating scale as follows:

- (1) Needed by most entry-level employees
- (2) Desirable to have
- (3) Not needed by entry-level employees

UNIT: INTRODUCTION OF AUTO MECHANICS (pp. 1-1-1 - 1-9-13) ISSOE Automotive Mechanics Curriculum

TASK:	REGION	1	8	10
<u>Identify Shop Hazards</u>				1.1
<u>Identify Personal Safety</u>				1.0
<u>Fill Out Job Application</u>		1.0		1.0
<u>Select Personal Goals</u>				1.5
<u>Identify, Use and Care Hand Tools</u>				1.1
<u>Identify Shop Power Equipment</u>				1.1
<u>Lift Vehicle</u>		1.0	1.0	1.0
<u>Change Engine Oil and Filter</u>		1.0	1.0	1.0
<u>Lubricate Chassis</u>		1.0	1.0	1.0
<u>Repack Front Wheel Bearings</u>		1.0	1.0	1.0
<u>Rotate Tires</u>		1.0	1.0	1.0
<u>Repair a Leaking Tire</u>		1.0	1.0	1.2
<u>Balance Wheels</u>		1.0	1.0	1.3
<u>Additional Tasks Recommended:</u>				

Employer validation of the Office Training competencies was conducted in Regions 8 and 10 with considerable agreement on competencies needed by new office employees as shown in Table 8. Further research is needed to increase the reliability for statewide comparisons.

TABLE 8
ISSOE

CIOE

OFFICE TRAINING TASK VERIFICATION FORM

Check below all tasks performed by personnel in office settings in your area. Also add any tasks not listed. Then identify each task according to the priority rating scale as follows:

- (1) Needed by most entry-level employees
- (2) Desirable to have
- (3) Not needed by entry-level employees

UNIT: BASIC SKILLS REFRESHER (pp. 1-1-1 - 1-2-4) ISSOE Office Training Curriculum

TASK:	REGION	8	10	
Use basic English skills		1.5	1.0	
Use basic arithmetic skills			1.1	
Additional Tasks Recommended:				
Vocabulary and Spelling			1.3	

ISSOE

CIOE

OFFICE TRAINING TASK VERIFICATION FORM

Check below all tasks performed by personnel in office settings in your area. Also add any tasks not listed. Then identify each task according to the priority rating scale as follows:

- (1) Needed by most entry-level employees
- (2) Desirable to have
- (3) Not needed by entry-level employees

UNIT: COMMUNICATION SKILLS (pp. 2.1.1 - 2.3.5) ISSOE Office Training Curriculum

TASK:	REGION	8	10
Receive and accommodate visitors		1.0	1.4
Use telephone systems and services		1.0	1.3
Receive, route, and place telephone calls		1.0	1.3
Compose a written communication		1.0	2.1
Process incoming and outgoing communications and materials		1.0	1.6
Additional Tasks Recommended:			
Travel and Meeting Arrangements			1.0

UNIT: WORD PROCESSING (pp. 3.1.1 - 3.3.1) ISSOE Office Training Curriculum

TASK:	REGION	8	10
Type a business letter with carbon copies and envelopes		1.0	1.0
Type a memorandum		1.0	1.1
Type a table		1.0	1.1
Type a manuscript		1.1	1.4
Record, revise, and playback multiple copies of a source document			2.6
Transcribe a business letter from recorded dictation		1.0	1.8

ISSOE

CIOE

OFFICE TRAINING TASK VERIFICATION FORM

Check below all tasks performed by personnel in office settings in your area. Also add any tasks not listed. Then identify each task according to the priority rating scale as follows:

- (1) Needed by most entry-level employees
- (2) Desirable to have
- (3) Not needed by entry-level employees

UNIT: FILING AND RETRIEVAL (pp. 4-1-1 - 4-3-6) ISSOE Office Training Curriculum

TASK:	REGION	8	10
Alphabetize names for filing		1.0	1.0
Arrange numerically for filing		1.0	1.1
Arrange names geographically for filing		1.0	1.7
Categorize by subject for filing		1.0	1.5
Define filing terminology			1.6
Organize, file, and retrieve correspondence			1.3

UNIT: REPROGRAPHICS (pp. 5-1-1 - 5-5-2) ISSOE Office Training Curriculum

TASK:	REGION	8	10
Prepare a spirit master and print copies		1.0	2.5
Prepare a stencil and print copies			3.0
Prepare a paper master and print copies			1.8
Prepare a spirit or stencil master by using a copy machine			2.7
Select proper duplication processes			2.2

Additional Tasks Recommended:

Prepare Electrostatic Plate			2.0
Xerox Copier			2.0

ISSOE

CIOE

OFFICE TRAINING TASK VERIFICATION FORM

Check below all tasks performed by personnel in office settings in your area. Also add any tasks not listed. Then identify each task according to the priority rating scale as follows:

- (1) Needed by most entry-level employees
- (2) Desirable to have
- (3) Not needed by entry-level employees

UNIT: ADDING AND CALCULATING MACHINES (pp. 6-1-1 - 6-2-7) ISSOE Office Training Curriculum

TASK:	REGION	8	10
Solve problems on the ten-key adding/listing machine		1.0	1.3
Solve problems on the full-key adding/listing machine		1.0	2.0
Solve problems on the electronic display calculator		1.0	1.8
Solve problems on the rotary calculator			2.8
<u>Additional Tasks Recommended:</u>			
Solve problems on the ten-key electronic printing calculator			1.7

ISSOE

CIOE

OFFICE TRAINING TASK VERIFICATION FORM

Check below all tasks performed by personnel in office settings in your area. Also add any tasks not listed. Then identify each task according to the priority rating scale as follows:

- (1) Needed by most entry-level employees
- (2) Desirable to have
- (3) Not needed by entry-level employees

UNIT: FINANCIAL AND RECORDKEEPING SYSTEMS (pp. 7.1.1 - 7.5.3) ISSOE Office Training Curriculum

TASK:	REGION	8	10
Establish, maintain and replenish a petty cash fund			2.3
Calculate a payroll			2.7
Maintain checking account record		2.0	2.3
Reconcile a bank statement		2.0	2.4
Maintaining a stock inventory			2.2
Complete purchasing and sales forms			2.1
Additional Tasks Recommended:			
Set-up expense account			1.0

UNIT: EMPLOYABILITY (pp. 9.1.1 - 9.2.2) ISSOE Office Training Curriculum

TASK:	REGION	8	10
Prepare an employment profile			1.8
Orally communicate job qualifications in an interview			1.4
Complete employment documentation			1.8
Plot a tentative career path			2.1
Additional Tasks Recommended:			

APPENDIX H

SUMMER WORKSHOP SCHEDULES
1976

I S S O E
OCCUPATIONAL EDUCATION TEACHERS' WORKSHOP
Cornell University
July 12-23, 1976

MONDAY, JULY 12

	AUTO MECHANICS	OFFICE TRAINING
9:00 - 10:30	REGISTRATION MVR 114	
10:30 - 11:30	WELCOME: INTRODUCTIONS DIRECTION AND PURPOSE OF WORKSHOP Al Edsall MVR 114	
11:30 - 1:00	LUNCH	
1:00 - 1:45	MAJOR AND ENABLING OBJECTIVES Martha Muncrief MVR 02	
1:45 - 2:15	COFFEE BREAK	
2:15 - 3:30	GROUP REACTIONS TO OBJECTIVES MVR 05	GROUP REACTIONS TO OBJECTIVES MVR 06
3:30 - 4:00	CONTENT SPECIALIST REACTION Carl Benenati MVR 05	CONTENT SPECIALIST REACTION Bart Conover MVR 06

TUESDAY, JULY 13

9:00 - 10:00	CURRICULUM DEVELOPMENT IN THE ISSOE PROJECT: PROBLEMS & CHALLENGES Martha Muncrief and Al Edsall MVR 02	
10:00 - 10:30	COFFEE BREAK	
10:30 - 12:00	REFINING OBJECTIVES Group Activity MVR 05	REFINING OBJECTIVES Group Activity MVR 06
12:00 - 1:30	LUNCH	
1:30 - 3:30	REFINING OBJECTIVES Group Activity MVR 05	REFINING OBJECTIVES Group Activity MVR 06
3:30 - 4:00	SUMMARY & PROGRESS REPORT Ken DeCerce MVR 02	

WEDNESDAY, JULY 14

	AUTO MECHANICS	OFFICE TRAINING
9:00 - 10:00	CRITERION-REFERENCED MEASUREMENT John Stallard MVR 02	
10:00 - 10:30	COFFEE BREAK	
10:30 - 12:00	CRITERION-REFERENCED MEASUREMENT Group Activity MVR 05	CRITERION-REFERENCED MEASUREMENT Group Activity MVR 06
12:00 - 1:30	LUNCH	
1:30 - 4:00	CRITERION-REFERENCED MEASUREMENT Group Activity MVR 05	CRITERION-REFERENCED MEASUREMENT Group Activity MVR 06

THURSDAY, JULY 15

9:00 - 10:00	CRITERION-REFERENCED MEASUREMENT John Stallard MVR 02	
10:00 - 10:30	COFFEE BREAK	
10:30 - 12:00	CRITERION-REFERENCED MEASUREMENT Group Activity MVR 05	CRITERION-REFERENCED MEASUREMENT Group Activity MVR 06
12:00 - 1:30	LUNCH	
1:30 - 3:30	CRITERION-REFERENCED MEASUREMENT Group Activity MVR 05	CRITERION-REFERENCED MEASUREMENT Group Activity MVR 06
3:30 - 4:00	CRITERION-REFERENCED MEASUREMENT John Stallard MVR 02	

MONDAY, JULY 19

	AUTO MECHANICS	OFFICE TRAINING
9:00 - 10:00	SELECTING LEARNING EXPERIENCES John Glenn MVR 02	
10:00 - 10:30	COFFEE BREAK	
10:30 - 12:00	LEARNING EXPERIENCES Group Activity MVR 05	LEARNING EXPERIENCES Group Activity MVR 06
12:00 - 1:30	LUNCH	
1:30 - 4:00	LEARNING EXPERIENCES Group Activity MVR 05	LEARNING EXPERIENCES Group Activity MVR 06

TUESDAY, JULY 20

9:00 - 10:00	SELECTING RESOURCES John Glenn MVR 02	
10:00 - 10:30	COFFEE BREAK	
10:30 - 12:00	LEARNING EXPERIENCES AND RESOURCES Group Activity MVR 05	LEARNING EXPERIENCES AND RESOURCES Group Activity MVR 06
12:00 - 1:30	LUNCH	
	LEARNING EXPERIENCES AND RESOURCES Group Activity MVR 05	LEARNING EXPERIENCES AND RESOURCES Group Activity MVR 06
3:30 - 4:00	SUMMARY AND PROGRESS TO DATE Barbara Thomas MVR 02	

WEDNESDAY, JULY 21

	AUTO MECHANICS	OFFICE TRAINING
9:00 - 10:00	STUDENT REPORTING SYSTEM Harry Bird MVR 02	
10:00 - 10:30	COFFEE BREAK	
10:30 - 12:00	STUDENT REPORTING SYSTEM Open Discussion MVR 02	
12:00 - 1:30	LUNCH	
1:30 - 4:00	OBJECTIVES Group Activity MVR 05	OBJECTIVES Group Activity MVR 06

THURSDAY, JULY 22

9:00 - 12:00	CRITERION-REFERENCED MEASUREMENTS Group Activity MVR 05	CRITERION-REFERENCED MEASUREMENTS Group Activity MVR 06
12:00 - 1:30	LUNCH	
1:30 - 4:00	LEARNING EXPERIENCES AND RESOURCES Group Activity MVR 05	LEARNING EXPERIENCES AND RESOURCES Group Activity MVR 06

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FRIDAY, JULY 16

	AUTO MECHANICS	OFFICE TRAINING
9:00 - 10:00	CRITERION-REFERENCED MEASUREMENT Open Discussion MVR 02	
10:00 - 10:30	COFFEE BREAK	
10:30 - 12:00	CRITERION-REFERENCED MEASUREMENT Group Activity MVR 05	CRITERION-REFERENCED MEASUREMENT Group Activity MVR 06
12:00 - 1:30	LUNCH	
1:30 - 3:30	CRITERION-REFERENCED MEASUREMENT Group Activity MVR 05	CRITERION-REFERENCED MEASUREMENT Group Activity MVR 06
3:30 - 4:00	SUMMARY AND PROGRESS TO DATE Barbara Thomas MVR 02	

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FRIDAY, JULY 23

	AUTO MECHANICS	OFFICE TRAINING
9:00 - 12:00	FINALIZING MODULES Group Activity MVR 05	FINALIZING MODULES Group Activity MVR 06
12:00 - 1:30	LUNCH	
1:30 - 3:00	THE ROLE OF THE TEACHER IN THE IN THE ISSOE EFFORT Al Edsall MVR 02	

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I S S U E
CUNY - OCCUPATIONAL EDUCATION TEACHERS' WORKSHOP
SUNY, Albany
July 19 - 30, 1976

Eva

MONDAY, July 19

(ALL SESSIONS IN CC315 UNLESS OTHERWISE INDICATED)

	BUILDING CONSTRUCTION	FOODS
10:00 - 10:30	REGISTRATION	
10:30 - 11:00	COFFEE BREAK	
11:00 - 11:10	WELCOME: INTRODUCTIONS Ted Abramson	
11:10 - 12:00	DIRECTION AND PURPOSE OF ISSOE Doug Adamson	
12:00 - 1:30	LUNCH -STATE QUADRANGLE	
1:30 - 2:15	SED, CUNY, -- CASE-IRDOE DIRECTION AND PURPOSE OF WORKSHOP Lee Cohen	
2:15 - 2:45	COFFEE BREAK	
2:45 - 3:30	HISTORY AND OUTCOME OF 1975-1976 ISSOE EFFORTS Al Edsel, Harold Dworetzky, John Fiore	
3:30 - 4:45	DEFINITIONS AND FORMAT Ted Abramson and Al Edsel	

TUESDAY, JULY 20

9:00 - 10:30	DEVELOPING MAJOR AND ENABLING OBJECTIVES Elaine Chapline	
10:30 - 11:00	COFFEE BREAK	
11:00 - 12:00	ROLE OF CURRICULUM COORDINATOR Harold Dworetzky and John Fiore	
12:00 - 1:00	LUNCH	
1:00 - 2:15	DEFINING UNITS, MODULES AND MAJOR OBJECTIVES Group Activity Joe Messier - CC 315	DEFINING UNITS, MODULES AND MAJOR OBJECTIVES Group Activity Vance Christian - CC 370
2:15 - 2:45	COFFEE BREAK	
2:45 - 3:45	STATEMENT OF MAJOR BEHAVIORAL OBJECTIVES Elaine Chapline	
3:45 - 4:45	DEFINING UNITS, MODULES AND MAJOR OBJECTIVES Joe Messier - CC 315	DEFINING UNITS, MODULES AND MAJOR OBJECTIVES Vance Christian - CC 370

WEDNESDAY, July 21

	BUILDING CONSTRUCTION	FOODS
9:00 - 10:30	TASK ANALYSIS AND BEHAVIORAL OBJECTIVES Randy Tarrier	
10:30 - 11:00	COFFEE BREAK	
11:00 - 12:00	DEFINING UNITS, MODULES AND MAJOR OBJECTIVES Joe Messier - CC 315	DEFINING UNITS, MODULES AND MAJOR OBJECTIVES Vance Christian - CC 370
12:00 - 1:00	LUNCH	
1:00 - 2:15	MODULE DEVELOPMENT Group Activity Joe Messier - CC 315	MODULE DEVELOPMENT Group Activity Vance Christian - CC 370
2:15 - 2:45	COFFEE BREAK	
2:45 - 4:45	DEFINING MAJOR OBJECTIVES Joe Messier - CC 315	DEFINING MAJOR OBJECTIVES Vance Christian - CC 370

THURSDAY, July 22

9:00 - 10:30	REFINING MAJOR OBJECTIVES Group Activities CC 315	REFINING MAJOR OBJECTIVES Group Activities CC 370
10:30 - 11:00	COFFEE BREAK	
11:00 - 12:00	SPECIFYING ENABLING OBJECTIVES Group Activities CC 315	SPECIFYING ENABLING OBJECTIVES Group Activities CC 370
12:00 - 1:00	LUNCH	
1:00 - 2:15	SPECIFYING ENABLING OBJECTIVES AND LEARNING ACTIVITIES Group Activities CC 315	SPECIFYING ENABLING OBJECTIVES AND LEARNING ACTIVITIES Group Activities CC 370
2:15 - 2:45	COFFEE BREAK	
2:45 - 4:45	MODULE DEVELOPMENT Group Activities CC 315	MODULE DEVELOPMENT Group Activities CC 370

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FRIDAY, July 23

	BUILDING CONSTRUCTION	FOODS
9:00 - 10:30	MODULE DEVELOPMENT Group Activities CC 315	MODULE DEVELOPMENT Group Activities CC 370
10:30 - 11:00	COFFEE BREAK	
11:00 - 12:00	REFINING MAJOR OBJECTIVES Group Activities CC 315	REFINING MAJOR OBJECTIVES Group Activities CC 370
12:00 - 1:00	LUNCH	
1:00 - 2:15	MODULE DEVELOPMENT Group Activities CC 315	MODULE DEVELOPMENT Group Activities CC 370
2:15 - 2:45	COFFEE BREAK	
2:45 - 3:45	MODULE DEVELOPMENT Group Activities CC 315	MODULE DEVELOPMENT Group Activities CC 370
3:45 - 4:15	SUMMARY AND PROGRESS TO DATE Ted Abramson	

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MONDAY, July 26

	BUILDING CONSTRUCTION	FOODS
9:00 - 10:30	CRITERION-REFERENCED MEASUREMENT AND MAJOR OBJECTIVES Al Edsel	
10:30 - 11:00	COFFEE BREAK	
11:00 - 12:00	CRITERION-REFERENCED MEASUREMENT Group Activity CC 315	CRITERION-REFERENCED MEASUREMENT Group Activity CC 370
12:00 - 1:00	LUNCH	
1:00 - 2:15	CRITERION-REFERENCED MEASUREMENT Group Activity CC 315	CRITERION-REFERENCED MEASUREMENT Group Activity CC 370
2:15 - 2:45	COFFEE BREAK	
2:45 - 3:45	CRITERION-REFERENCED MEASUREMENT Group Activity CC 315	CRITERION-REFERENCED MEASUREMENT Group Activity CC 370
3:34 - 4:45	CRITERION-REFERENCED MEASUREMENT Al Edsel	

TUESDAY, July 27

	BUILDING CONSTRUCTION	FOODS
9:00 - 10:15	MODULE DEVELOPMENT AND REFINEMENT Elaine Chapline	
10:15 - 10:45	COFFEE BREAK	
10:45 - 12:00	MODULE REFINEMENT Group Activity Joe Messier - CC 315	MODULE REFINEMENT Group Activity Vance Christian - CC 370
12:00 - 1:00	LUNCH	
1:00 - 2:15	CRITERION REFERENCED MEASUREMENT Group Activity CC 315	CRITERION REFERENCED MEASUREMENT Group Activity Vance Christian - CC 370
2:15 - 2:45	COFFEE BREAK	
2:45 - 4:45	REFINING MODULES Group Activities CC 315	REFINING MODULES Group Activities Vance Christian - CC 370

WEDNESDAY, July 28

9:00 - 10:30	REFINING OBJECTIVES AND ASSESSMENTS Randy Tarrier	
10:30 - 11:00	COFFEE BREAK	
11:00 - 12:00	REFINING MODULES Group Activity CC 315	REFINING MODULES Group Activity CC 350
12:00 - 1:00	LUNCH	
1:00 - 2:15	REFINING MODULES Group Activity CC 315	REFINING MODULES Group Activity CC 350
2:15 - 2:45	COFFEE BREAK	
2:45 - 4:15	REFINING MODULES Group Activity CC 315	REFINING MODULES Group Activity CC 350
4:15 - 4:45	SUMMARY AND PROGRESS REPORT Ken De Cerce & Lee Cohen	

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THURSDAY, July 29

BUILDING CONSTRUCTION		FOODS
9:00 - 10:30	FINALIZING MODULES Group Sessions CC 315	FINALIZING MODULES Group Sessions CC 370
10:30 - 11:00	COFFEE BREAK	
11:00 - 12:00	FINALIZING MODULES Group Sessions CC 315	FINALIZING MODULES Group Sessions CC 370
12:00 - 1:00	LUNCH	
1:00 - 2:15	FINALIZING MODULES Group Sessions CC 315	FINALIZING MODULES Group Sessions CC 370
2:15 - 2:45	COFFEE BREAK	
2:45 - 4:45	FINALIZING MODULES Group Sessions CC 315	FINALIZING MODULES Group Sessions CC 370

FRIDAY, July 29

9:00 - 10:30	FINALIZING MODULES Group Sessions CC 315	FINALIZING MODULES Group Sessions CC 370
10:30 - 11:00	COFFEE BREAK	
11:00 - 12:00	FINALIZING MODULES Group Sessions CC 315	FINALIZING MODULES Group Sessions CC 370
12:00 - 1:00	LUNCH	
1:00 - 2:15	FINALIZING MODU Group Sessions CC 315	FINALIZING MODULES Group Sessions CC 370
2:15 - 2:45	COFFEE BREAK	
2:45 - 3:30	THE ROLE OF THE TEACHER IN THE ISSOE EFFORT Doug Adamson & Ted Abramson	

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APPENDIX I

SUMMER WORKSHOP SCHEDULE
1977

I S S O E
TEACHERS' SUMMER WORKSHOP
Cornell University
July 5-15, 1977

TUESDAY, JULY 5

11:00 - 12:00		REGISTRATION - NORTH CAMPUS UNION	
12:00 - 1:15		LUNCH	
1:30 - 1:40	H. Wardeberg G. Winter L. Cohen	OPENING SESSION - WELCOME & INTRODUCTIONS	MVR N207
1:40 - 2:00	D. Adamson	ORIENTATION TO ISSOE	
2:00 - 2:10	A. Edsall	DIRECTIONS & PURPOSE OF WORKSHOP	
2:10 - 2:30	K. DeCerce	ROLE OF REGIONAL COORDINATORS & TEACHER TRAINING INSTITUTIONS	
2:30 - 3:00	T. Abramson A. Edsall/D. Zuzio	OVERVIEW & OUTCOMES	
3:00 - 3:20	T. Abramson A. Edsall	FORMAT AND DEFINITION OF TERMS	
3:30 - 3:45		DISCUSSION	
3:45 - 4:15		ADMINISTRATIVE DETAILS	

WEDNESDAY, JULY 6

8:00 - 8:20	E. Hay A. Edsall	TASK ANALYSIS - BASIS OF ISSOE DETERMINING PARAMETERS OF OCCUPATIONAL AREA DEFINING UNITS AND MODULES	MVR N207
8:45 - 9:05		COFFEE BREAK - STUDENT LOUNGE -	MVR FIRST FLOOR
9:05 - 11:45	C. Benenati K. James R. E. Ostler M. Potter	GROUP ACTIVITIES Determine Parameters Defining Units & Modules	MVR NG 02 NG 06 NG 03 NG 35
11:45 - 12:45		LUNCH	
12:45 - 1:45	T. Abramson R. Tarrier	BEHAVIORAL OBJECTIVES	MVR N207
1:45 - 2:30	C. Benenati K. James R. E. Ostler M. Potter	GROUP ACTIVITIES Writing Behavioral Objectives Redefining Units & Modules	MVR NG 02 NG 06 NG 03 NG 35
3:00 - 3:20		REPORTING SESSION	MVR N207

THURSDAY, JULY 7

8:00 - 8:20	T. Abramson A. Edsall	MAJOR & ENABLING OBJECTIVES	MVR N207
8:20 - 8:30	D. Zuzio	CONSIDER STUDENT NEEDS	
8:30 - 9:00		COFFEE BREAK	
9:00 - 11:00		GROUP ACTIVITIES Reconsidering Units & Modules Write Major Objectives (2 modules)	MVR NG 02 NG 06 NG 03 NG 35
11:00 - 11:45	*TT SED *CC	REPORT AND CRITIQUE MAJOR OBJECTIVES	MVR N207
11:45 - 12:45		LUNCH	
12:45 - 2:40		GROUP ACTIVITIES Writing Major Objectives	MVR NG 02 NG 06 NG 03 NG 35
<u>EVENING SESSION</u>			
7:00 - 7:15	T. Abramson	ENTRY LEVEL COMPETENCY	
7:15 - 9:10		CRITIQUE - REWRITE MAJOR OBJECTIVES	
9:10 - 9:30		REPORTING SESSION	

FRIDAY, JULY 8

8:00 - 8:45	B. Thomas J. Roeder R. Braun R. Todd	PANEL DISCUSSION Psychomotor, Cognitive, Affective Domains	MVR N207
8:45 - 9:00		SPECIFYING ENABLING OBJECTIVES	
9:00 - 9:15		COFFEE BREAK	
9:15 - 10:00		GROUP ACTIVITIES FOR 3 MAJOR OBJECTIVES WRITE 3 ENABLING OBJECTIVES	MVR NG 02 NG 06 NG 03 NG 35
10:00 - 11:00		Critique Major Objectives & Enabling Objectives	
11:00 - 11:30		REPORTING SESSION	MVR N207
11:30 - 12:15		LUNCH	
12:15 - 1:00		GROUP ACTIVITIES Prepare a model Major Obj. & associated Enabling Obj.	MVR NG 02 NG 06 NG 03 NG 35
1:00 - 1:45	*TT	REPORTING AND PRESENTATION SESSION MODEL MAJOR OBJECTIVES EACH AREA	MVR N207
1:45 - 2:00	T. Abramson	SUMMARY OF WEEKS ACTIVITIES	

MONDAY, JULY 11

8:00 - 8:45	T. Abramson A. Edsall	CRITERION REFERENCED MEASUREMENT	MVR Ampitheatre
8:45 - 9:05		COFFEE BREAK	
9:05 - 11:45		GROUP ACTIVITY Criterion referenced measurement development	MVR NG 02 NG 06 NG 03 NG 35
11:45 - 12:45		LUNCH	
12:45 - 1:30		REPORTING AND CRITIQUING CRM	MVR Ampitheatre
1:30 - 2:45		GROUP ACTIVITY CRM development	MVR NG 02 NG 06 NG 03 NG 35
2:45 - 3:15		REPORTING SESSION	
<u>EVENING SESSION</u>			
7:00 - 7:45	K. Ormiston	ADDRESSING STUDENT OUTCOMES	
7:45 - 9:30		GROUP ACTIVITY CRM - Major Objective	

TUESDAY, JULY 12

8:00 - 8:40	SED **RC *TT	VALIDATING MAJOR OBJECTIVES PANEL DISCUSSION	MVR N207
8:40 - 9:00		COFFEE BREAK	
9:00 - 11:45		GROUP ACTIVITY CRM development	
11:45 - 12:30		LUNCH	
12:30 - 2:15		GROUP ACTIVITY Prepare Model CRMs	
2:15 - 3:15		REPORTING AND PRESENTATION OF MODEL CRMS	

*TT - Teacher Training - N. Acguaviva-Utica/Rome - Upper Division
J. Glenn-Utica/Rome - Upper Division
J. Lahren-SUC - Buffalo
J. Roeder-SUC - Buffalo
R. Todd-New York University

**RC - Regional Coordinators

WEDNESDAY, JULY 13

8:00 - 8:30	A. Edsall	STUDENT REPORTING SYSTEM
8:30 - 8:50		COFFEE BREAK
8:50 - 11:45		GROUP ACTIVITY Module Development and Refining
11:45 - 12:30		LUNCH
12:30 - 1:15		REPORTING SESSION
1:15 - 3:00		GROUP ACTIVITY Module Development and Refining
<u>EVENING SESSION</u>		
7:00 - 9:00		PROGRESS REPORT Refining Modules

THURSDAY, JULY 14

8:00 - 9:00	T. Abramson	ROLES OF SED, RESEARCH AND DEVELOPMENT UNITS
9:00 - 9:20		COFFEE BREAK
9:20 - 11:00		GROUP ACTIVITY Refining Modules
11:00 - 11:45		PROGRESS REPORT
11:45 - 12:30		LUNCH
12:30 - 2:30		GROUP ACTIVITY Refining Modules
<u>EVENING SESSION</u>		
7:00 - 9:00		POOL PARTY

FRIDAY, JULY 15

8:00 - 9:00	E. Cardish T. Trainers	PANEL DISCUSSION - 1977-78 SCHOOL YEAR
9:00 - 9:30		COFFEE BREAK
9:30 - 11:00		GROUP ACTIVITY Sequence - Units, Modules, Major Objectives
11:00 - 11:45		REPORTING SESSION
11:45 - 12:30		LUNCH
12:30 - 1:15		COMPLETE LIST OF UNITS, MODULES, MAJOR OBJECTIVES
1:15 - 1:45		DEVELOP 77-78 WORK PLAN
1:45 - 2:15		REPORTING SESSION
2:15 - 2:30		WRAP UP

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APPENDIX J

PILOT TEST OF REPORTING SYSTEM

Seventy-one Automotive Mechanics teachers and forty-one Office Training teachers substantiated the concept that modularized competency based occupational education programs can be developed by occupational teachers and implemented in their classroom/shop settings immediately. These teachers, from thirty-four school districts throughout New York State, made this a statewide effort. Table 1 shows teachers participation by New York State Occupational Education Planning Region.

TABLE 1

TEACHER PARTICIPATION

	<u>Automotive Mechanics</u>	<u>Office Training</u>
Region 1	38	
Region 3	7	4
Region 8	6	10
Region 10	20	27
Totals	71	41

Seventy-one Automotive Mechanics teachers represented 74% of the Automotive Mechanics teachers in the schools districts participating in the 1976-77 ISSOE field testing phase as shown in Table 2. Distribution by regions is shown in Appendix A. (Participation = Teacher participation in ISSOE: Involvement = Teacher is using ISSOE curriculum in classroom/shop.)

TABLE 2

New York State Regional Totals - Auto Mechanics

REGION	TEACHERS			
	Total	Involved	Not Involved	Percent Involved
1	38	28	10	74%
3	12	8	4	50%
8	6	6	0	100%
10	25	18	7	72%
Totals	81	60	21	74%

These 71 Automotive Mechanics teachers were responsible for 3,227 students (May'77). Approximately one-third of these students (1,343) were involved in the ISSOE Modularized Curriculum as reported by the teachers. Table 3 displays the number of students meeting each major objective of the ISSOE modularized curriculum. Totals by region are in Appendix B. The Automotive Mechanics program contained 117 major objectives and 114 of the major objectives were accomplished by students. Greater numbers of students may have met more major objectives if new teachers were indoctrinated in September and a student reporting system was in place.

TABLE 3
I S S O E
AUTOMOTIVE MECHANICS (1732)
STUDENT MAJOR OBJECTIVE INVOLVEMENT

NEW YORK STATE TOTALS - REGIONS 1-3-8-10

UNIT 01: INTRODUCTION TO AUTOMOTIVE MECHANICS	Total # Students	Total Meeting Major Obj	%
Module 01: Shop Procedures	3227		
Task 01: Identify Shop Hazards		1343	41.6
Module 02: Personal Safety	3227		
Task 01: Identify Personal Safety		1332	41.3
Module 03: Job Requirements	3227		
Task 01: Fill Out Job Application		623	19.3
Module 04: Job Opportunities	3227		
Task 01: Select Personal Goals		753	23.3
Module 05: Hand Tools	3227		
Task 01: Identify, Use & Care Hand Tools		1256	38.9
Module 06: Power Equipment	3227		
Task 01: Identify Shop Power Equipment		1153	35.7
Task 02: Lift Vehicle		1141	35.4
Module 07: Lubrication Service	3227		
Task 01: Change Engine Oil & Filter		896	27.8
Task 02: Lubricate Chassis		979	30.3

Module 08: Wheel Bearing	3227		
Task 01: Repack Front Wheel Bearings		913	28.3
Module 09: Tire Service	3227		
Task 01: Rotate Tires		816	25.3
Task 02: Repair a Leaking Tire		662	20.5
Task 03: Balance Wheels		779	24.1
UNIT 02: CHASSIS AND FRAME	Total # Students	Total Meeting Major Obj	%
Module 01: Drum Brakes	3227		
Task 01: R & R Brake Shoes		943	29.2
Task 02: R & R Parking Brake Cable		488	15.1
Module 02: Disc Brakes	3227		
Task 01: R & R Disc Brake, Caliper, Pads & Rotor		706	21.9
Module 03: Hydraulics	3227		
Task 01: R & R Brake Lines		563	17.4
Task 02: R & R Wheel Cylinder		759	23.5
Task 03: R & R Master Cylinder		538	16.7
Task 04: R & R Power Brake Assist Unit		277	8.6
Task 05: R & R Proportioning Valve		205	6.3
Task 06: Overhaul a Master Cylinder		400	12.4
Task 07: Recondition Wheel Cylinder		655	20.3
Task 08: Overhaul Disc Brake Caliper		378	11.7
Task 09: Machine Brake Drums & Disc		635	19.7
Module 04: Suspension	3227		
Task 01: R & R Shock Absorbers		678	21.0
Task 02: Measure Standing Height		342	10.6
Task 03: Check Front End for Wear		677	21.0
Task 04: R & R Front End Linkage		383	11.9
Task 05: R & R Ball Joints		518	16.0
Task 06: R & R Control Arms		284	8.8
Task 07: R & R Coil Springs		272	8.4
Task 08: R & R Leaf Spring		192	6.0
Task 09: R & R Torsion Bar		147	4.5

Module 05: NYS Inspection	3227		
Task 01: Perform State Inspection		345	10.7
Module 06: Alignment	3227		
Task 01: Align Front End		340	10.5

UNIT 02: CHASSIS AND FRAME contd.	Total # Students	Total Meeting Major Obj	%
Module 07: Steering	3227		
Task 01: Adjust Pitman Arm Preload		207	6.4
Task 02: Check Oil Pressure		142	4.4
Task 03: R & R Power Steering Hose		306	9.5
Task 04: R & R Power Steering Pump		304	9.4
Task 05: R & R Steering Box		179	5.5
UNIT 03: POWER PLANT			
Module 01: Liquid Cooling	3227		
Task 01: Inspect and Test		988	30.6
Task 02: Drain, Flush & Refill		659	20.4
Task 03: R & R Minor Parts		702	22.0
Task 04: R & R Major Parts		349	10.8
Module 02: Carburetor	3227		
Task 01: Service Carburetor /		584	18.1
Task 02: Overhaul Carburetor (one barrel)		372	11.5
Task 03: Overhaul Carburetor (two barrel)		346	10.7
Task 04: Overhaul Carburetor (four barrel)		228	7.1
Module 03: Storage & Delivery	3227		
Task 01: Service Fuel Storage & Delivery System		333	10.3
Module 04: Fuel Injection	3227		
Task 01: Service Fuel Injection System		0	0.0
Module 05: Primary Circuit	3227		
Task 01: Test the Primary Ignition Circuit		795	24.6
Task 02: Replace and/or Adjust Primary Circuit Component		766	23.7
Task 03: Overhaul Distributor		454	14.1
Module 06: Secondary Circuit	3227		
Task 01: Service Ignition Secondary Components		960	30.0

UNIT 03: POWER PLANT contd..	Total # Students	Total Meeting Major Obj	Σ
Module 07: Tune Up & Diagnosis	3227		
Task 01: Perform Minor Tune Up		893	30.5
Task 02: Connect & Program an Analyscope		417	12.92
Task 03: Diagnose an Engine Electronically		278	8.61
Module 08: Electronic Ignition	3227		
Task 01: Select Proper Test Equip. & Diagnose Autolite Electronic Ignition Problems		38	1.2
Task 02: R & R Components of Autolite Electronic Ignition System		32	0.99
Task 03: Test Components of Chrysler Electronic Ignition System		196	6.1
Task 04: Test GM "HEI" Distributor Assembly & Coil Assembly		127	3.9
Module 09: Exhaust System	3227		
Task 01: R & R Minor Parts		813	25.2
Task 02: R & R Major Parts		655	20.3
Module 10: Emission Control	3227		
Task 01: Identify & Test Emission Controls		368	11.4
Module 11: Short Block	3227		
Task 01: Service Timing Chain & Camshaft		420	13.0
Task 02: Service Pistons & Rings		238	7.4
Task 03: R & R Crankshaft		262	8.1
Task 04: Machine the Short Block		105	3.2
Module 12: Valve Systems	3227		
Task 01: R & R Rocker Arms		591	18.3
Task 02: R & R Cylinder Head		634	19.6
Task 03: Service Cylinder Head		702	22.0
Task 04: Machine & Measure		275	8.5

UNIT 04: ELECTRICAL	Total # Students	Total Meeting Major Obj	%
Module 01: Lights	3227		
Task 01: Test Electrical System		184	5.7
Task 02: R & R Components of Lighting System		562	17.4
Module 02: Storage Battery	3227		
Task 01: Start an Engine Using Booster Cable		814	25.2
Task 02: Service & Test Battery		860	26.6
Module 03: Charging System	3227		
Task 01: Test, R & R Components of Charging System		522	16.2
Task 02: Test & Overhaul Automotive Alternator		373	11.6
Module 04: Starting System	3227		
Task 01: Test, Diagnose, R & R Components of the Starting System		472	14.6
Task 02: Overhaul Starter		422	13.2
Module 05: Instruments	3227		
Task 01: Test Instruments		197	6.1
Task 02: R & R Indicators		212	6.6
Module 06: Power Accessories	3227		
Task 01: Test, R & R Defective Components of Power Antenna		38	1.2
Task 02: Test, Repair, Adjust or Replace Components of Power Seats		38	1.2
Task 03: Test, Repair or Replace Defective Components of Power Windows		37	1.1

UNIT 05: DRIVE LINE	Total # Students	Total Meeting Major Obj	%
Module 01: Drive Shaft	3227		
Task 01: R & R Universal Joint		565	17.5
Task 02: Balance & Correct Angle of Drive Shaft		28	8.9
Task 03: R & R Constant Velocity Joint		122	3.8
Module 02: Rear Assembly	3227		
Task 01: R & R Differential Assembly		337	10.4
Task 02: Overhaul Differential Assembly		65	2.0
Task 03: R & R Axle and Axle Bearing & Seal		393	12.2
Task 04: R & R Axle and Axle Bearing		306	9.5
Module 03: Clutch Assembly	3227		
Task 01: R & R Clutch		383	12.0
Module 04: Manual Transmission	3227		
Task 01: R & R Manual Transmission		393	12.2
Task 02: Overhaul Manual Transmission		134	4.1
Module 05: Automatic Transmission	3227		
Task 01: R & R Automatic Transmission		331	10.3
Task 02: Overhaul Transmission		89	2.8
Task 03: R & R Fluid, Filter, Seal & Gasket		411	12.7
Task 04: Adjust Bands		187	5.8
Task 05: Adjust Linkage		182	5.6
Task 06: Pressure Test Transmission		66	2.0

UNIT 06: BODY MECHANICAL	Total # Students	Total Meeting Major Obj	%
Module 01: Body Adjustments	3227		
Task 01: Make Minor Exterior Body Adjust- ments on Station Wagon		48	1.5
Task 02: Make Windshield Wiper Repairs		132	4.1
Task 03: Make Minor Interior Body Adjustments		80	2.5
Task 04: Perform Major Door Alignment		55	1.7
Module 02: Glass Adjustments	3227		
Task 01: Perform Necessary Glass Adjustments		35	1.1
Module 03: Interior Appearance	3227		
Task 01: Clean/Polish Interior Surfaces		178	5.5
Module 04: Exterior Appearance	3227		
Task 01: Clean and Polish Exterior		105	3.2
Task 02: Clean and Treat Vinyl Top		85	2.6
UNIT 07: ACCESSORIES			
Module 01: Heater	3227		
Task 01: Service and Test heater		266	8.2
Module 02: Air Conditioner	3227		
Task 01: Test Operation of Air Conditioner		104	3.2
Task 02: Evacuate and Charge Air Conditioner		81	2.5
Task 03: R & R Components		31	0.96
Task 04: Overhaul Air Conditioner Compressor		0	0.0
Module 03: Speed Control Devices	3227		
Task 01: Test and Adjust Speed Control Devices		0	0.0
Module 04: Rear Defogger/Defroster	3227		
Task 01: Test, Repair or Replace		36	1.1

Office Training Teachers taught all 39 of the major objectives developed for the field testing phase of the ISSOE effort. The 41 teachers involved 527 students during the year as shown in Table 4. Approximately 78% of the student met objectives as specified with the range of success from 42% to 100%. Information from Table 5 indicates the veteran teachers (teachers involved for two-years in the ISSOE effort) had a higher student success rate than the new teachers (teachers involved for the first time in the 1976-77 ISSOE effort) (85% vs 70%).

TABLE 4
I S S O E
OFFICE TRAINING PROGRAM 1976-77

COMPARISON OF USAGE BY NEW & VETERAN TEACHERS	NEW TEACHERS	VETERAN TEACHERS
41 Teachers total	No. = 27	No. = 14
Total number of Objectives taught	217	210
Average Number of Objectives taught	9.0	15.0
Total number of Objectives for which CRMs were used	189	144
Average number of CRMs used	7.9	10.3
Total number of students who started Objectives	3,328	4,131
Total number of students who successfully completed the Objective	2,320	3,506
% of students who successfully completed Objective	70%	85%
Range of reported success rate in teaching Objectives (by teacher's total)	11%-98%	37%-99%

Number of students: New teachers 215 Veteran teachers 312

TABLE 5
ISSOE PROGRESS REPORT

OFFICE TRAINING

1976-77

TEACHER: New Teachers Summary

SCHOOL: _____

DATE: _____

UNITS	MODULE	OBJ #	Did you teach objective? (Check if "Yes")	Did you test the objective with CRM?	No. of students who started objective	No. of students who success- fully completed objective	% Passing objective
01: BASIC SKILLS REFRESHER	01-English Refresher	01	10	8	198	112	57
	02-Arithmetic Refresher	01	4	3	68	53	78
02: COMMUNICATION SKILLS	01-Oral Communication	01	4	3	26	25	96
	" "	02	6	5	83	63	76
	" "	03	6	4	70	58	83
	02-Written Communication	01	4	4	63	42	67
	03-Mail Handling	01	2	2	28	24	86
03: WORD PROCESSING	01-Production Typing	01	14	13	204	91	45
	" "	02	12	11	153	111	73
	" "	03	12	12	215	134	62
	" "	04	10	9	104	68	65
	02-Magnetic Keyboard	01	1	1	8	8	---
	03-Machine Transcription	01	4	3	50	36	72
04: FILING AND RETRIEVAL	01-Alphabetic Filing	01	9	9	144	97	67
	02-Numeric, Geographic & Subject Filing	01	5	5	56	52	94
	" "	02	5	5	65	42	65
	" "	03	3	3	57	24	42
	03-Modern Filing System	01	3	3	38	20	53
	" " "	02	1	0	0	0	---

ISSOE PROGRESS REPORT
OFFICE TRAINING
1976-77
Page -2- New Teachers Summary

UNIT	MODULE	OBJ #	Did you teach objective? (Check if "yes")	Did you test the objective with CRM?	No. of students who started objective	No. of students who success- fully completed objective	% Passing objective
05: REPROGRAPHICS	01-Spirit Duplication	01	10	10	182	162	89
	02-Stencil Duplication	01	9	9	160	127	79
	03-Offset Duplication	01	1	0	0	0	---
	04-Direct Reproduction	01	2	2	44	30	68
	05-Reprographics Decis- ion Making	01	2	2	29	21	72
06: ADDING AND CALCULATING MACHINES	01-Adding Machines	01	11	10	197	125	63
	" "	02	3	1	40	30	75
	02-Calculating Machines	01	12	11	188	121	64
	" "	02	6	4	88	66	75
	" "	03	1	0	0	0	---
07: FINANCIAL AND RECORDKEEPING SYSTEMS	01-Petty Cash Fund	01	4	3	48	34	71
	02-Payroll Procedures	01	7	6	108	86	80
	03-Banking Procedures	01	6	5	80	64	80
	" "	02	5	4	66	45	68
	04-Inventory	01	1	1	19	19	---
	05-Purchasing and Sales Documents	01	2	2	26	20	77
09: EMPLOYABILITY	01-Employment Procedures	01	9	9	196	146	74
	" "	02	7	7	115	85	74
	" "	03	4	4	102	69	68
	02-Career Dynamics	01	0	0	0	0	---

ISSOE PROGRESS REPORT

OFFICE TRAINING

1976-77

TEACHER: Veteran Teachers Summary

SCHOOL: _____

DATE: _____

UNITS	MODULE	OBJ #	Did you teach objective? (Check if "Yes")	Did you test the objective with CRM?	No. of students who started objective	No. of students who success- fully completed objective	% Passing objective
01: BASIC SKILLS REFRESHER	01-English Refresher	01	6	3	70	51	73
	02-Arithmetic Refresher	01	10	8	217	146	67
02: COMMUNICATION SKILLS	01-Oral Communication	01	7	3	92	91	99
	" "	02	7	3	83	80	96
	" "	03	7	3	112	109	97
	02-Written Communication	01	2	1	48	48	---
	03-Mail Handling	01	6	3	93	59	63
03: WORD PROCESSING	01-Production Typing	01	7	5	172	147	85
	" "	02	7	5	172	143	83
	" "	03	7	5	173	157	91
	" "	04	6	4	117	98	84
	02-Magnetic Keyboard	01	4	3	30	30	100
	03-Machine Transcription	01	8	7	187	161	86
04: FILING AND RETRIEVAL	01-Alphabetic Filing	01	10	8	236	183	78
	02-Numeric, Geographic & Subject Filing	01	5	4	114	79	69
	" "	02	1	1	22	15	---
	" "	03	2	2	25	15	60
	03-Modern Filing System	01	4	1	55	54	---
	" " "	02	1	1	55	55	---

ISSOE PROGRESS REPORT

OFFICE TRAINING

1976-77

Page -2- Veteran Teachers Summary

UNIT	MODULE	OBJ #	Did you teach objective? (Check if "yes")	Did you test the objective with CRM?	No. of students who started objective	No. of students who success- fully completed objective	% Passing objective
05: REPROGRAPHICS	01-Spirit Duplication	01	11	9	312	298	96
	02-Stencil Duplication	01	8	7	208	198	95
	03-Offset Duplication	01	2	1	37	28	---
	04-Direct Reproduction	01	1	1	55	54	---
	05-Reprographics Decision Making	01	3	2	67	52	78
06: ADDING AND CALCULATING MACHINES	01-Adding Machines	01	9	8	208	182	88
	" "	02	4	4	133	128	96
	02-Calculating Machines	01	7	5	134	116	87
	" "	02	2	2	20	17	85
	" "	03	0	0	0	0	---
07: FINANCIAL AND RECORDKEEPING SYSTEMS	01-Petty Cash Fund	01	7	5	89	57	64
	02-Payroll Procedures	01	2	2	55	35	64
	03-Banking Procedures	01	5	4	138	111	80
	" "	02	5	4	137	101	74
	04-Inventory	01	3	3	63	37	59
	05-Purchasing and Sales Documents	01	2	0	0	0	---
09: EMPLOYABILITY	01-Employment Procedures	01	10	7	166	158	95
	" "	02	8	4	67	64	96
	" "	03	8	5	147	132	90
	02-Career Dynamics	01	6	1	22	17	---

APPENDIX K
STUDENT EMPLOYABILITY PROFILE

RECORD OF ACHIEVEMENT

ATTENDED

AT

FROM _____ TO _____

AND ATTAINED THE FOLLOWING COMPETENCIES:

ISSOE PROGRAMS

212

BOCES OR SCHOOL

OFFICE TRAINING

Name _____

School _____

Rating:

- 10 Performs task without supervision/assistance, can lead others in performing task. Has initiative and adaptability to special problems.
- 9.0 Performs task without supervision/assistance with proficiency in speed/quality.
- 8.0 Performs task satisfactorily without supervision/assistance.
- 7.0 Performs task satisfactorily requires periodic supervision/assistance.
- 6.5 Performs task, requires considerable supervision/assistance. Meets minimum job standards.
- 6.0 Some knowledge/limited experience, not sufficient for participation in a typical work environment.

Ratings based on industrial performance standards. They are confirmed by instructor.

Instructor _____

Date _____

A letter of reference attesting to the individual's attendance, punctuality, and work habits is available from school's office.

Basic Skills and Employability

Use basic English

Use basic Math

Application & data

Interview Job Quali

Employment Documen.

Career Path

Communication Skills

Receive Visitors

Telephone Test

Telephone Simulation

Written Communica.

Process incoming/outgoing mtls.

Word Processing

Type arr. bus. letter

Type long unarr. bus. ltr.

Type 2-page unarr. bus. ltr.

Type unarr. memo

Type mul. add. memo

Type arr. table

Type unarr. table

Type manuscript

Rec., revise mul. copies

Transcribe dictation

Filing and Retrieval

Alphabetize

Numerically

Geographi- cally

Subject filing

Terminology

Corres. filing

Reprographics

Spirit Master

Stencil

Paper Master

Use copy machine

Duplication processes

Adding/ Calculating Machines

Ten-key add

Full-key add

Ten-key print. cal.

Electronic display cal.

Rotary Calculator

Financial/ Recordkeeping Systems

Petty Cash Fund

Payroll

Checking Account

Bank Statement

Inventory

Purchasing/ Sales

Data Processing

Data Processing

Describe Computer System

Hardware/ Software

Identify Machine Pts.

Punch Cards

Program Card

RECORD OF ACHIEVEMENT

ATTENDED

AT _____

FROM _____ TO _____

AND ATTAINED THE FOLLOWING COMPETENCIES:

ISSOE PROGRAMS

215

BOCES OR SCHOOL

K-3

AUTO MECHANICS

Name _____

School _____

Rating:

10 Performs task without supervision/assistance, can lead others in performing task. Has initiative and adaptability to special problems

9.0 Performs task without supervision/assistance with proficiency in speed/quality.

8.0 Performs task satisfactorily without supervision/ assistance

7.0 Performs task satisfactorily requires periodic supervision/ assistance.

6.5 Performs task, requires considerable supervision/ assistance. Meets minimum job standards.

6.0 Some knowledge/limited experience, not sufficient for participation in a typical work environment.

Ratings based on industrial performance standards. They are confirmed by instructor.

Instructor _____

Date _____

A letter of reference attesting to the individual's attendance, punctuality, and work habits is available from school's office.

Introduction to Auto Mechanics

Identify Shop Hazards

Identify Personal Safety

Fill Out Job Application

Select Personal Goals

Use/Care Hand Tools

Use Shop Power Equipment

Chassis and Frame

R&R Brake Shoes

R&R Parking Brake Cable

R&R Disc Brake

R&R Brake Lines

R&R Wheel Cylinder

R&R Master Cylinder

Check Front End for Wear

R&R Front End Linkage

R&R Ball Joints

R&R Control Arms

R&R Coil Springs

R&R Leaf Spring

Power Plant

Test Cooling System

Flush Cooling System

R&R Minor Pts.Cooling System

R&R Major Pts.Cooling System

Service Carburetor

Overhaul 1 Barrel Carburetor

Program Analyscope

Diagnose Engine Electronically

Diagnose Autolite Ignition

Service Autolite Ign.System

Service Chrysler Elec.Ign. Sys.

Service GM H.E.I. Assembly

Electrical

Test Electrical System

Service Lighting System

Use Booster Cable

Service/Test Battery

Service Charging System

Test/Overhaul Auto. Alternator

Drive Line

R&R Universal Joint/Drive Shaft

R&R Constant Velocity Joint

R&R Differential Assembly

Overhaul Differential Assembly

R&R Axle

R&R Clutch

Body Mechanical and Accessories

Make Minor Ext.Body Adjustment

Make Major Windshield Wiper Rep.

Make Minor Int.Body Adjustment

Perform Major Door Alignment

Perform necessary glass adjustments

Clean/polish Interior Surfaces

217

Lift Vehicle	Change Eng. Oil/Filter	Lubricate Chassis	Repack Front Wheel Bearings	Rotate Tires	Repair Leaking Tire	Balance Wheels		
R&R Power Assist Unit	R&R Proportioning Valve	Overhaul Master Cylinder	Recondition Wheel Cyl.	Overhaul Disc.Brake Caliper	Machine Brake Drums	Machine Disc Brake	R&R Shock Absorbers	R&R Shock Absorbers
Measure Standing Height	R&R Torsion Bar	Perform State Insp.	Align Front End	Adjust Pitman Arm	Check Oil Pressure P/S	R&R P/S Hose	R&R P/S Pump	R&R Steering Box
Overhaul 2 Barrel Carburetor	Overhaul 4 Barrell Carburetor	Service Fuel System	Service Fuel Inject. System	Test Prim. Ignition Circuit	Service Prim.Cir. Components	Overhaul Distributor	Service Ign. Secondary Components	Perform Minor Tune-up
R&R Minor Pts.Exhaust System	R&R Major Pts. Exh. System	Identify/Test Emis. Controls	Service Timing Chain Camshaft	Service Pistons/Rings	R&R Crankshaft	R&R Rocker Arms	R&R Cyl. Head	Service Cylinder Head
Service Starting System	Overhaul Starter	Test Instruments	R&R Indicators	Service Power Antenna	Service Power Seats	Service Power Windows		
R&R Manual Transmission	Overhaul Manual Trans.	R&R Auto. Transmission	Overhaul Auto.Transmission	Service Auto Trans-mission	Adjust Bands	Pressure Test Trans.	Adjust Linkage	
Clean/Polish Ext.	Clean/Treat Vinyl Top	Service/Test Heater	Test Air Conditioner	Evacuate/Charge Air Conditioner	R&R Components	Overhaul Air Cond. Compressor	Service Speed Cont. Devices	Service Rear Defog. Defroster

APPENDIX L

CONCEPTUAL DESIGN FOR
STUDENT REPORTING SYSTEM

PROPOSED CONCEPTUAL DESIGN FOR THE
INSTRUCTIONAL SUPPORT SYSTEM FOR
OCCUPATIONAL EDUCATION
REPORTING SYSTEM

BY

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Project Director

William Kyros
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Cornell Institute for Research and
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January, 1977

INTRODUCTION

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INTRODUCTION

The purpose of this paper is to propose concepts for the data inputs and informational outputs for the Instructional Support System for Occupational Education. As often happens in education the operational need for this system came into existence before the total system within which it is to operate was conceptually finalized. This subsystem, ISSOE (the acronym by which it is referred) has been previously specified but has encountered numerous design difficulties principally because of the fluidity of the conceptual design of the parent system.

Practical considerations persist and demand that a working model of ISSOE be formulated and tested for feasibility at an early date. This paper, therefore, describes a model for the ISSOE reporting system which was developed using the systems approach. That is, it was designed to provide informational support at the instructional level in a way that is compatible with the total system. If the systems approach is not taken at this point and ISSOE continues to be designed in isolation, its redefinition is likely to continue ad infinitum and will be accompanied by considerable frustration among the users and also considerable cost to the taxpayer.

This paper attempts to do three things:

- (1) Provide an overview of the total system to show where and how ISSOE fits in,
- (2) Provide conceptual descriptions of required informational outputs, and the data inputs from which they can be derived, and
- (3) Present approaches for the solution of problems associated with the classification of programs, the reporting of data and the generation outputs such as employability profiles, progress reports and student report card information.

OVERVIEW OF TOTAL SYSTEM

OVERVIEW OF TOTAL SYSTEM

A management information system for occupational education, namely CIMS/OE¹ is currently under development by the New York State Education Department for the purpose of systematically collecting data to support educational managers in their planning and decision-making functions (Seckendorf, 1973). An enormously complex system, CIMS/OE is comprised of three major subsystems which are also in various stages of development and conceptual redefinition. Each of these subsystems is intended to generate information which will support decisions at different management levels. (See Reference 2 for a complete description of CIMS/OE.)

The original conceptual design of CIMS/OE specified these three major management information subsystems as:

- (1) RESOE - the reporting and evaluation system for occupational education,
- (2) ISSOE - the instructional support system for occupational education,
- (3) TASOE - the targeting system for occupational education.

An updated version of the concept specifies the three major management information subsystem as:

- (1) OERS - occupational education reporting system
- (2) ISSOE - the instructional support system for occupational education,
- (3) (EIS) - employment information system.

The types of decisions which are intended to be supported by such a systems concept are infinite in as much as the design is totally flexible and intended to generate informational outputs requested to support any management inquiry at hand. For example, at the upper end of the management hierarchy, the Commissioner of Occupational Education has the responsibility for determining the most effective expenditure of public funds for the public good. Mechanisms

¹CIMS/OE is an acronym for Comprehensive Instructional Management System for Occupational Education.

for providing information to support decisions at this level include cost-effectiveness, cost-benefit, cost impact analyses as well as others. At the other end of the management hierarchy, teachers and guidance counselors have the responsibility for deciding what competencies are best suited for individual students to learn in order for them to maximize their employment potential. This same system provides the information necessary to support these decisions. Similarly, at all other intermediate management levels, information which is needed to support the inquiry at hand is generated from the same data base at the request of the decision-maker.

Integrated Design

The distant goal in the development of CIMS/OE is that of an integrated design. That is, the various operating information systems of SED and school districts are to become integrated subsystems of the total management information system. The advantages of an integrated design are economy, efficiency, effectiveness and control. This total information system can be a combination of management information subsystems such as ISSOE and operational information subsystems such as payroll systems. A payroll system that produces paychecks for teachers is classified as an operational information system but if payroll data is utilized to determine program costs or to perform labor analyses it is considered part of the management system.

A major feature of an integrated information system is a common data flow. (O'Brien, 1975.) This is the use of common input, processing, and output procedures where it is feasible. An optimum systems design collects data only once as close to the original source as possible. An optimum system also utilizes a minimum of data processing procedures and subsystems to process the data and to minimize the number of output documents. For example, as many student characteristic data as possible should be captured at the time the student enrolls in a particular school so that the data will not be again requested from school psychologist, teacher, or staff member at a later time. This kind of integration avoids duplication, simplifies operations and produces an efficient system.

Data Base Design

The major characteristic of integrated information systems is a common data base which eliminates duplication in storage and retrieval of data and information. The data base consolidates and integrates data records that are stored in many separate data files. (O'Brien, 1975.)

In the conceptual design of CIMS/OE, OERS is specified as a flexible data base to support federal and State mandated reporting requirements and to also support ISSOE and EIS. It consists of disaggregated census data for all school systems offering occupational programs in the State of New York. It includes all of the data required by the U.S. Office of Education Annual Federal Report for Occupational Education and by the State of New York upon which school reimbursements are based. The data types include: student enrollment and completors by programs, school staff, expenditures, instructional objectives by program, and facilities.

Instructional Support System for Occupational Education

An integral part of comprehensive management information system, ISSOE is primarily intended to support decision-making by teachers and counselors in meeting the needs of students in their pursuit of employability. It also contains data that supports decision-making at other management levels. (See Reference 4 for a complete description of ISSOE.)

The proposed information structure of ISSOE is designed to support decision-making at the teacher level in the following ways: (1) It is required to support the counseling process by providing for the matching of student characteristics and interests to occupations for which they are best suited; (2) It is required to generate employability profiles for individual students by way of delineating the skills which they have acquired by job title and also their level of achievement; (3) It is required to provide the basis for updating skills offered to ensure that the needs of business and industry are being addressed. Modularized occupational curricula is at the heart of the informational structure to meet these requirements.

Modularized curricula developed as an integral part of ISSOE specify job skills as intended learning outcomes and are structured in a way that provide the basis for individualized instruction. With definitive skills specified in the modules as major objectives and with enabling objectives to achieve them delineated, the basis for matching student cognitive styles to available methods of instruction is at hand. A record of major objectives achieved by the student provided the basis for employability profiles. This requires that major objectives be linked to job titles described in the Dictionary of Occupational Titles (D.O.T.). In addition, the record of what skills students can perform at program completion can be used to discuss more objectively with employers (1) if skills being taught are valid, (2) if obsolete skills are being taught, (3) if skills are not being taught which should be in order to keep up with technological changes and, (4) if acceptable levels of performance are being met.

This data also provides for the determination of program effectiveness and cost-effectiveness which is essential to upper echelon decision-makers. When merged with USOE codes (Reference 5) and with coded job titles and worker trait groups (Reference 6) the process of targeting occupational education programs to occupations also becomes more effective.

The conceptual design of ISSOE proposed herein related the skills which are specified within curriculum modules which are acquired by students to the occupational code system of the U.S. Department of Labor (D.O.T. Codes) and to instructional programs described by USOE codes. The design accommodates the diversity of program structures as they exist in the field by permitting an accurate clustering of skills by programs and by enrollment.

The balance of this paper focuses on the key concepts of informational outputs and the data inputs necessary to generate them. The order of presentation is output to input. That is, the outputs that are viewed as being useful to teacher decision-making and also to upper echelon management decision-making are discussed first.

After identifying types of outputs; data inputs necessary to generate them are described.

Before proceeding it would be useful to point out the distinction being made between 'data' and 'information'.

The terms 'data' and 'information' are often used interchangeably. However, a distinction should be made between the two. Data should be viewed as the raw material which is processed into the finished product of information. Information can be defined as data that has been transformed into meaningful and useful form for specific human beings. In some cases data may not require processing before constituting information for a human user. However, data is usually not useful until it has been subjected to a process where its form is manipulated and organized and its content is analyzed and evaluated. Then it becomes information.

What is the difference between data and information?

382436, that's data.

38-24-36, that's information.¹

¹Charles Wadsworth, The Orlando (Fla.) Sentinel (April 12, 1971), p.6

INFORMATION OUTPUTS

INFORMATION OUTPUTS

The following sections describe the form into which data collected from school managers can be arranged into useful information outputs. Desired outputs for the students, teachers and employers are defined first, then those which would be useful to upper echelon managers. The idea of presenting outputs at both ends of the management hierarchy is to illustrate how data collected once at one management level can be used to support outputs at other levels. The considerations in determining what data is collected at what level are (1) where the most accurate data can be generated and (2) the minimization of the amount of data reported for any one level by distributing the data collection activity across all management levels. Systems analyses of school districts in Massachusetts have shown that some data is collected as many as sixteen different times from several different administrators to satisfy various reporting requirements. (Kyros, 1975.) If a similar situation exists in New York an optimally designed data collection process to satisfy CIMS/OE should result in a reduction of data reporting activities by incumbent managers and/or teachers and not an increase.

Student Output Information

Outputs which can provide information that can be utilized by students, teachers and employers include (1) student progress records (2) achievement level reports (from which report cards can be automatically generated) and (3) employability profiles.

Student Progress Record - Figure 1, p. 31, illustrates an individual progress record from which outputs (2) and (3) can also be generated without any additional data input by the teacher. This output answers the following questions:

1. What is the student's name and for what occupation is he/she being trained?

The response is given in lines (1) and (2) and is based on conferences among the student, counselor, and teachers. The evaluation of the student's interests and activities and labor market demands result in directing the student ²³⁴ to target the occu-

pation or occupation cluster to which he/she is best suited. The occupations are designated by D.O.T. codes which are currently utilized by the New York State Employment Service in their listings of job opportunities.

2. What tasks has this student acquired and how well can he/she do them?

The response is given in line (3) which delineates all of the tasks which he/she has attained to date. The tasks are those specified in the modules and the quality scores are those assigned by the instructor. The central notion of quality scores is to measure the quality of the student's performance, i.e., the output product. The combination of the quality score and the number of students completing the module are essential to the evaluation of the program. Appendix B, p. 33, discusses the problem of acquiring comparative data upon which management decisions can be made regarding program evaluation and upon which employer's decisions can be made regarding the employability of the student. A solution to the problem is offered in the Appendix.

3. How well can the student perform in the chosen occupation?

Line (4) provides a cumulative score which answers this question and automatically generates student report cards in any format required by the local school system.

4. What additional tasks does the student have to master in order to qualify for the target occupation?

Line (5) enumerates the tasks by module which the student needs in order to complete the requirements for the target operation.

Student Achievement Level Reports - Quality scores to reflect student achievement level can be derived by the assignment of numerical values to any existing subjective or quantified system which is currently in place in the local school system. For example, if a school system utilizes a five level rating system to report on student performance, as (1) fair, (2) satisfactory, (3) good, (4) excellent, and (5) superior, the numerical values 1 through 5 can be assigned to generate a score for each module or skill. Numerical values are not only easier for the computer to manage but they are essential for the application of program effectiveness, cost-effectiveness and cost-benefit techniques.

Employability Profile - An employability profile is a listing of all of the occupations for which a student is qualified. Ideally it would include a listing of the tasks which the student is able to perform and an indication of how well he/she can perform them. (See Figure 1, p. 31.)

Program Output Information

This section describes in broad terms the nature of the CIMS/OE information outputs that are required by managers of occupational education other than teachers to evaluate programs for purposes of policy and decision-making.

The data base (OERS) provides a complete description of the inputs to occupational education in New York by collecting expenditure and non-expenditure data. (OERS) provided: staff and enrollment information which can be used to generate pupil/teacher information; facility utilization of student class time to determine the mix of academic and occupational education in a program. In terms of expenditure inputs to occupational programs, current and capital costs of training are available in terms of total costs, per department (or program) total costs per pupil, and also supportive and instructional costs per department are available as totals and per pupil basis.

In addition to the inputs to occupational education, job entry skills (TASKS) which can be used to describe educational outputs

have been developed as an integral part of CIMS/OE. These outputs are described in curriculum modules, which when related to programs described by USOE codes makes possible a convenient description of educational outputs which is compatible with the federal reporting system for occupational education. When this information is merged with financial data, program evaluations can be made between schools or school systems on many levels.

The following example demonstrates how OERS integrated with ISSOE, i.e., the modular concept of specifying outcomes provides a solution to the problem of providing an accounting to the public. With these two subsystems of CIMS/OE operating integrally it is possible to demonstrate that occupational education yields results consistent with the goals that society has set for it. Hypothetically, let us consider two schools. Each offers an auto mechanics program designed to meet local manpower needs by utilizing the CIMS/OE employment subsystem. Although each school consistently graduates the same number of students, it costs the first school 30 percent more per pupil to produce a graduate.

The citizens and school committee in the first school district know only that it costs 30 percent more than the other community to turn out an auto mechanic, and they are justified in questioning the cost difference. They may question whether their school is being managed efficiently, if the money expended is being used effectively, and if their graduates are better prepared.

Basis for Cost-Benefit Analysis - Under present conditions there is no way for the school to justify its higher cost, or for the State Education Department to evaluate the program against the expenditures. By using the modules, however, it can be demonstrated that the auto mechanics program completors can perform 50 entry-level skills as compared to 35 in the other school and that it accommodates a number of main-streamed disadvantaged students in the program who require special equipment, special teachers, and special attention. By following up its graduates, the higher-cost school can show that more of its graduates find jobs, earn more, and return \$7 for every dollar invested in them as compared to the other school.

The stage is now set for a cost-benefit analysis to determine if the educational outcomes are worth the additional expense. The last point is an important one for it would be an obvious advantage to the occupational education manager if it could be determined that what the student learns in the classroom is clearly connected to the positive effects that he/she ultimately has on society. These positive effects, both economic and non-economic, would include such factors as productivity in terms of employment, production of goods and services, and tax revenues, as well as the student's contribution to the family and society.

It should be noted that cost-benefit analyses can be included in CIMS/OE as a longitudinal study performed on a sampling basis to provide indicators of the impact of the student on society over time.

Basis for Cost-Effectiveness Analysis A record of module achievement by students within an occupation combined with information describing differential career patterns of graduates over several years would be useful input to policies governing the substance of occupational education for future waves of students. With program goals specified by objectives (prescribed within the modules) definitive job-entry skills that students demonstrate upon graduation can be more objectively discussed with advisory councils, employers and lay citizens.

Because of their structure, the modules can be used as the basis to determine program effectiveness and also cost-effectiveness. Testing against the major objectives with quality scores generated on a 1 to 5 scale can be used to determine the achievement level of students for each job-entry skill offered. This represents an important development in the evaluation of occupational programs in terms of student achievement.

It is noted that the determination of student achievement levels and the generation of quantitative results with dispersion characteristics are critical to the evaluation of occupational programs. From a technological viewpoint the issue is not whether student grade scores are essential to CIMS/OE but what methodologies should be applied to acquire such data. (Appendix B.)

DATA INPUTS (REPORTING PROCESS)

DATA INPUTS (OR REPORTING PROCESS)

The teacher inputs necessary to generate specified informational outputs is required to be minimal and, if possible, be designed in a manner which will reduce the current paperwork load. The design offered below satisfies these requirements in that it requests only four data types from teachers. These data include:

1. Program classification by USOE code (which is a one-time requirement)
2. The name of the student
3. The code number of the tasks completed
4. The achievement score on the tasks completed

The reporting of these data will generate for the teacher and the student:

1. The student progress chart
2. The student report card
3. An employability profile

These data inputs when aggregated by the computer and when merged with financial data and D.O.T. codes will be included in the informational outputs required to support program decisions by upper echelon school managers and those of the State Education Department which were discussed in the previous section. It is noted that D.O.T. codes are not required to be inputted by teachers.

Program Classification System

A system of accurately classifying programs by numerical means is necessary in order to manipulate the data for the generation of the specified informational outputs. The main consideration in the design of such a system is to define a methodology that can accurately describe the program as it is being offered. Since programs that are offered across the State carry similar word titles but are structured differently and contain different content, the teacher is best able to provide the most accurate descriptors. The following method which was developed by the MISOE, a project of the Massachusetts Department of Education, can be adapted to meet ISSOE data input requirements.

Program Structure - Occupationally-oriented programs are structured in two distinct ways. In general, program structure in city vocational-technical schools and BOCES centers differs from that of many regular high schools, comprehensive schools, and community colleges.

Most BOCES schools and community colleges in New York use a structured or "tracked" system of instructing their students. A mandatory sequence of courses is prescribed for each occupational area in which students are trained. This sequence of courses ensures that each student is enrolled in a complete instructional program, and it is assumed that the program will provide the student with all the required job-entry skills. For example, students enrolled in the Woodworking Department acquire the job-entry skills for carpentry and cabinet-making. In order for a student to successfully complete this program in either carpentry or woodworking, he is required to follow a prescribed course sequence established by the school.

Regular high schools and comprehensive schools often differ in their program structure. These programs may be offered to students on an "untracked" basis. In an "untracked" program, students are not required to follow a prescribed course sequence. In many schools a course sequence is recommended for preparation in specific occupational areas, but a student is not bound to follow it. For example, a student enrolled in the Business Education Department may want to acquire a job-entry skill for an occupation as a secretary. The school's Business Education Department recommends a specific course sequence to be followed over a three-year period. However, the student may elect to follow the suggested sequence, or may elect to follow his/her own. In the latter case, the sequence of courses chosen can usually be used to define the student group into which he/she falls, i.e., whether the student emphasizes bookkeeping or stenography or secretarial, or general office skills, etc.

USOE Codes - Codes have been developed by the U.S. Office of Education for the purpose of providing accurate and comparable information about vocational instructional programs in the United States and its territories. These codes are connected to definitions for instructional programs and are currently used by USOE for collecting, recording, interpreting, and transmitting meaningful data about enrollments, graduates and placements at the local, State, and national levels.

It would be inefficient for New York State to devise a classification system of its own when one already exists which is applicable. Therefore the method offered below utilizes USOE codes to describe occupational programs of instruction as they exist in New York State. The method connects program descriptors to enrollments, to job-entry skills acquired, to occupations for which they are being trained. This inter-relationship forms the basis for all of the outputs previously described.

The USOE Code System describes seven major occupational areas of instruction. Each is identified by the two digits to the left of the decimal point of a six (or eight) digit code number, as follows:

01	Agricultural Occupations	09	Home Economics Occupations
04	Distribution and Marketing Occupations	14	Office and Business Occupations
07	Health Occupations	16	Technical Occupations
		17	Trade and Industrial Occupations

Numbers to the right of the decimal point describe increasing occupational specificity by which to classify students enrolled in instructional areas, for example:

First 2-digit position:

14 OFFICE OCCUPATIONS

Second 2-digit position:

14.02 BUSINESS DATA PROCESSING SYSTEMS OCCUPATION

Third 2-digit position:

14.0202 PERIPHERAL EQUIPMENT OPERATORS

Fourth 2-digit position:

14.020201 KEYPUNCH & CODING EQUIPMENT OPERATORS

Six-digit numbers are usually sufficient to classify most instructional programs in the State.

While USOE Code numbers identify instructional areas, they do not necessarily represent administrative units such as departments. For instance, a particular school may offer a woodworking curriculum, administered by a woodworking department, which instructs students to be carpenters and cabinet-makers. In such a situation, two USOE Codes are necessary to accurately identify the instructional areas or student groups: 17.1001 for carpentry and 17.3601 for cabinet-making.¹ The remainder of this section describes how students in instructional occupational programs (as they are offered in New York) can be accurately classified by USOE Codes.

Students enrolled in Occupational Education programs can be coded by three distinct methods in order to accurately describe instructional areas as they are offered. These methods are: 1. The Single Student Group Method, 2. The Multiple Student Group Method and 3. The Clustered Student Group Method. They are described below.

¹These code designations are not of sufficient specificity to include all of the actual occupations for which students would qualify. For example, an instructional area classified as 17.3601 "Millwork and Cabinetmaking" may qualify a program completor for employment as a furniture assembler, tenoner operator, patternmaker and many others depending on the specific job-entry skills learned during the educational experience. In view of this, it is necessary to relate D.O.T. Codes, titles, and worker trait groups with the USOE Codes and titles of the educational programs in order to establish a connection between demand and supply information.

Single Student Group Programs - A single student group program is defined by a situation where all students are offered the same course sequence throughout the entire program. They are all prepared for the same occupational area(s) and they all receive training in identical job-entry skills modules. A single student group may receive training which could be described by one or several USOE Codes.

For example, consider an Automotive Mechanics Program which includes learning experiences as described by the following USOE Code:

"17.0302 AUTOMOTIVE MECHANICS

Learning experiences concerned with the components of the vehicle, including engine, power transmission, steering, brakes and electrical systems. Included is training in the use of diagnostic and testing equipment and tools used in the repair process."

If all of the students in this program are offered the same learning skills, as defined by modules, it is considered to be a single student group program described by one USOE Code. Its enrollment would be represented by grade as follows:

GRADE	10	11	12
USOE CODE	17.0302	17.0302	17.0302
ENROLLMENT	60	58	55

In certain instances, two USOE Codes may be required to more accurately describe the instructional area. For example, if within this automotive mechanics program job-entry skills in engine tune-ups were emphasized so that program completors would qualify as tune-up specialists in addition to general auto mechanics, the following description by USOE Code provides a better description of the program.

"17.0303 AUTOMOTIVE SPECIALIZATION

Learning experiences which emphasize more detailed training in the adjustments and repair of individual components and systems of the automobile, such as radiator, transmission, carburetor and brake system to achieve greater proficiency in the servicing of selected components."

The enrollments by grade would then be represented as follows:

GRADE	10	11	12
USOE CODE	17.0302 17.0303	17.0302 17.0303	17.0302 17.0303
ENROLLMENT	60	58	55

Note that all students still receive identical training throughout the program.

Multiple Student Group Programs - A multiple student group program is defined by a situation where students are offered training in several occupational areas, but where not all students receive identical training throughout the program. Different course sequences are followed by groups of students within the program. They are, therefore, acquiring job-entry skills (modules) which will prepare them for several distinct occupations. Student groups of this kind are identified at the beginning of the program and remain static to its completion. For example, consider a Graphic Arts Program which includes learning experiences as described by the following USOE Codes: Composition, Make-up and Typesetting (17.1901), Printing Press Occupations (17.1902) and Lithography, Photography and Platemaking (17.1903).

"17.1901 COMPOSITION, MAKE-UP AND TYPESETTING

Organized learning experiences concerned with layout, composition, make-up and hand and machine typesetting and type-casting."

"17.1902 PRINTING PRESS OCCUPATIONS

Organized learning experiences concerned with making ready, operating and maintaining printing presses."

"17.1903 LITHOGRAPHY, PHOTOGRAPHY & PLATEMAKING

Organized learning experiences concerned with lithography, lithographic photography, stripping, and related platemaking processes."

The program is structured so that students may opt for training in one or more occupational areas within the program. It is therefore considered to be a multiple student group program and the enrollment would be represented as follows for each grade level:

GRADE 10				
USOE CODE	17.1901	17.1092	17.1903	17.1901 17.1902
ENROLLMENT	25	25	25	25

GRADE 11				
USOE CODE	17.1901	17.1902	17.1903	17.1901 17.1902
ENROLLMENT	25	24	23	24

GRADE 12				
USOE CODE	17.1901	17.1902	17.1903	17.1901 17.1902
ENROLLMENT	20	24	22	23

This example indicates that of the 100 students enrolled in the program in the tenth grade, twenty-five are receiving instruction in Composition, Make-up and Typesetting (17.1901), twenty-five in Printing Press Occupations (17.1902), twenty-five in Lithography, Photography and Platemaking (17.1903), and twenty-five are receiving instruction in the two occupational areas, Composition, Make-up and Typesetting (17.1901), and Printing Press Occupations (17.1902). The same structure applies for the eleventh and twelfth grades with the decrease in enrollment due to attrition. Note that the student group did not change throughout the program.

If this program were structured so that all students were receiving instruction in all three areas throughout the program, it would be a single student group program with a multiple code.

The enrollment would be described as follows:

GRADE	10	11	12
USOE CODE	17.1901 17.1902 17.1903	17.1901 17.1902 17.1903	17.1901 17.1902 17.1903
ENROLLMENT	100	96	89

As a further example of a multiple student group program, consider a Graphic Arts Department that includes significant instruction in the commercial art field and when, upon completion, a student is capable of performing skills as a commercial artist. Let it be assumed that this hypothetical department divides its students in the tenth, eleventh and twelfth grades into two groups, the Graphics Arts student group and the Commercial Art student group.

It is determined by the teacher that the USOE Code numbers that best describe the Graphic Arts Group are 17.1901, 17.1902,

and 17.1903 and that the Commercial Art group are best described by the following USOE Codes: 17.0700 (Commercial Arts Occupations), 17.0701 (Interior Decorator).

"17.0700 COMMERCIAL ART OCCUPATIONS

Organized specialized learning experiences which include theory, laboratory, and shop-work as they relate to the design and execution of layouts and making illustrations for advertising, display and instructional manuals. Instruction includes advertising, theory and preparation of copy, lettering, poster design, fashion illustration, silk screen, air brush and touch-up, inks and color dynamics, package and product design, drawings for line and half-tone reproduction, and other display devices and exhibits."

"17.0701 INTERIOR DECORATING

Organized learning experiences concerned with the application of art principles to the design, selection, and arrangement of materials and objects in interiors of residential and commercial structures, and in shops and aircraft to achieve aesthetic effects or as a media for conveying ideas."

This also is a multiple student group program and the enrollment would be represented as follows for each grade level:

GRADE	10		11		12	
USOE CODE	17.1901 17.1902 17.1903	17.0700 17.0701	17.1901 17.1902 17.1903	17.0700 17.0701	17.1901 17.1902 17.1903	17.0700 17.0701
ENROLLMENT	25	25	23	23	20	20

Clustered Student Group Programs - A clustered student group program is defined by a situation where the program is structured so that the students are broadly grouped in the lower grades,

receiving training in job-entry skills (modules) for a wide variety of occupations, and in the higher grades they are re-grouped according to the specific occupational areas in which they have selected to receive training. In a clustered situation the number of student groups increases from the lower to the higher grades. The key to recognizing the difference between a multiple and a clustered program is that in the multiple situation the groups remain static throughout the program, while in the clustered situation the groups are fluid. A student has the option to choose a more highly specialized group as he/she progresses through the program.

For example, consider a Business/Office Education Department which offers learning experiences described by the following USOE Codes: 14.0100 (Accounting & Computing), 14.0300 (General Office/Clerical) and 14.0700 (Stenographic, Secretarial & Related).

"14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS

Planned learning experiences which include a combination of courses and practical experiences concerned with systematizing information about transactions and activities into accounts and quantitative records, and paying and receiving money."

"14.0300 FILING, OFFICE MACHINES, AND GENERAL OFFICE CLERICAL OCCUPATIONS

Planned learning experiences which include a combination of courses and practical experiences concerned with making, classifying, and filing records, including written communications."

At the beginning of the program (ninth or tenth grade), the students are grouped together taking courses that are common to all occupational areas of specialization. During the next two or three years, their training becomes more specialized as they concentrate on one or more areas of preparation. The following presents the enrollment data for the program just described:

GRADE	9	10	11		12		
USOE CODE	14.0100 14.0300 14.0700	14.0100 14.0300 14.0700	14.0100	14.0300 14.0700	14.0100	14.0300	14.0700
ENROLLMENT	100	150	50	75	25	25	25

This example indicates that in the ninth and tenth grades, all students are in the same multi-coded student group receiving instruction that could lead to any of the three areas of specialization. In grade 11, however, fifty students have elected to concentrate on courses that would qualify them as accountants (or bookkeepers) 14.0100, while seventy-five students are taking courses that would provide them with skills in general office clerical work 14.0300, and in the same stenographic and secretarial area 14.0700. In the final grade, all students concentrate in one area of specialization.

If a Business/Office program is structured so that all students are receiving instruction in all three areas throughout the program, it would be a single student group program with a multiple code. The enrollment would be described as follows:

GRADE	9	10	11	12
USOE CODE	14.0100 14.0300 14.0700	14.0100 14.0300 14.0700	14.0100 14.0300 14.0700	14.0100 14.0300 14.0700
ENROLLMENT	100	150	125	75

Federal Reporting - It is emphasized if enrollments in New York State occupational programs are classified by USOE Codes and stored in a computer, the Annual Federal Report for Occupational Education which is required by USOE can be generated automatically. This is another example of how data properly coded to accurately represent reality can be inputted once and serve to generate several reports.

Enrollment by Tasks and Quality Scores

This section describes the data inputs which are necessary to provide: (1) more precise instructional direction for the teacher and student, (2) the data for employability profiles, and (3) the basis for determining program effectiveness.

In the previous section methodologies were presented which can accurately describe programs and enrollments through the use of USOE codes and the concepts of grouping students to target occupational areas. However, targeting occupations does not provide sufficiently precise direction upon which instruction can be focused. The rationale behind the specification of clear, unambiguous major objectives within the modules is to provide such clear direction for the teacher and the student towards the attainment of the desired occupation. In other words, it is not possible to teach to an occupation, it is necessary to teach to the skills which constitute the occupation. These skills are included in the modules as intended learning outcomes and they represent the heart of the Instructional Support System.

The data input by teachers is contained in Figure 1, p. 31. The teacher reports the student's name (line 1), a record of modules passed (tasks acquired, line 2). The teachers are also required to classify their programs by USOE code. This is a one-time determination which depends on the structure of their program and the modules being offered.

The delineation of the modules acquired provide the basis of the employability profiles. It is virtually meaningless to say that this student has completed a program in auto mechanics without specifying the skills which can be performed and how well they can be performed. It is obvious that the degree of proficiency which a student exhibits in the performance of skills has a bearing on his/her employability. The degree of proficiency is customarily reported in the form of letter grades in most schools and is intended to reflect how well the student has performed. These letter grades can easily be translated into numerical quality scores.

The basis for determining the effectiveness of the program is tied in to student quality scores. These scores essentially measure the discrepancy between the intended learning outcomes and the actual learning outcomes.

Employability Profiles

Employability profiles are statements which answer the questions:

1. In what occupation has this student been instructed?
2. What skills can he/she perform?
3. How well can he/she perform them?

The data input to generate employability profiles is not a demand on the teacher since it is simply a matter of relating the modules that are relevant to the occupations being targeted. This is a one-time input, periodically up-dated, which connects module codes with D.O.T. codes. This data is then merged by the computer with the data input previously provided by the teacher to produce Figure 2. The system design proposed responds to the current practices of the New York State Employment Service which lists and stores available occupations by D.O.T. codes. The job-hunting student, knowing the D.O.T.s for which he/she is suited and trained, is able to scan tapes to locate prospective employers.

APPENDICES

APPENDIX A

**FIGURE 1 - Student Progress Record and Achievement
Level Report**

FIGURE 2 - Student Employability Profile

FIGURE 1: STUDENT PROGRESS RECORD & ACHIEVEMENT LEVEL REPORT

1. STUDENT NAME	JOHN SMITH
2. D.O.T. CODE	Brakeman 620.281-034
3. TASKS ACQUIRED & Q SCORE	1. R & R Brake Shoes (3.0) 2. R & R Parking Brake Cable (3.1) 3. R & R Disc Brake Caliper (2.1) 4. R & R Brake Lines (4.2)
4. CUM Q SCORE	3.2
5. TASKS REQUIRED TO QUALIFY & MODULE NO.	5. R & R Wheel Cylinder (18) 6. R & R Master Cylinder (19) 7. R & R Power Brake Assist (20)

FIGURE 2: STUDENT EMPLOYABILITY PROFILE

1. STUDENT NAME	JOHN SMITH
2. D.O.T. CODE	Brakeman 620.281-034
3. TASK ACQUIRED & Q SCORE	1. R & R Brake Shoes (3.0) 2. R & R Parking Brake Cable (3.1) 3. R & R Disc Brake Caliper (2.1) 4. R & R Brake Lines (4.2) 5. R & R Wheel Cylinder (4.0) 6. R & R Master Cylinder (3.9) 7. R & R Power Brake Assist (4.1)
4. CUM Q SCORE	3.5

APPENDIX B

Normative Data for Criterion-Referenced Tests

APPENDIX B - Normative Data for Criterion-Referenced Tests

Purpose:

The purpose of this appendix is to address the problem encountered in the application of criterion-referenced tests in ISSOE and to offer an approach to its solution.

Statement of the Problem:

Briefly stated, the demand for comparative data upon which decisions can be made about the quality of performance of a student is not satisfied by the current criterion-test measures that are specified in the Automotive Mechanics modules.

Presently a method is used which is intended to indicate whether a student has met minimum entry level performance for a given major objective which represents a job competency. While this is sufficient to describe what a student can do at the completion of a module, it does not indicate how well the student can perform. This deficiency causes three distinct problems.

The first problem is related to the grading systems employed by the local schools which require letters to be assigned to each student. Letter grades cannot be derived directly from the simple acceptable performance approach.

The second problem is concerned with the employer who wishes to know how well, or how proficient, a student can perform a given configuration of competencies that qualify the student for a particular occupation. For example, John may have passed objectives (or modules) 1, 2, and 3 which indicates that he has achieved minimum entry level requirements for the position of Front End Man. In fact, John can perform these three skills in twice the flat rate time. Mary, on the other hand, can also perform the same three skills but can do so within flat rate time. It is evident that the level of proficiency of each student is important information for the employer to know but it cannot be supplied by the existing system.

The third problem which arises is one of concern to the program evaluator who wants to know how well the students should be doing.

Under the present system the Auto Mechanics program has identified 117 competencies stated in the form of major objectives (Intended Learning Outcomes) which provide the basis for criterion-referenced testing. At the end of the program a given school would report that 80 percent of the students mastered Module 1, and that 60 percent of the students have mastered Module 2, etc. If Module 1 were a particularly difficult one, the 80 percent figure would conceivably indicate that the school was doing a good job. However if Module 2 were an easy one, the 60 percent figure would reflect instructional failure, not success.

These deficiencies are real ones, but they can be accommodated by designing criterion-referenced tests that also yield normative data.

Proposed Solution

The design of criterion-tests yielding normative data has been previously suggested (Popham, 1976 and Kyros, 1975.) as a means of providing increased descriptive power. It is suggested that testing against locally opted objectives with quality scores developed on a 1 to 5 scale can determine achievement and quality level for each job-entry skill offered. The following is suggested: (1) fair, (2) satisfactory, (3) good, (4) excellent, and (5) superior. Popham observes that, "with properly constituted comparative data, criterion-referenced tests can even be a great boon to educational evaluators."

The proposed solution therefore is to include criterion-referenced measures in each module that will provide the basis for generating both kinds of data while at the same time maintaining validity and reliability.

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REFERENCES

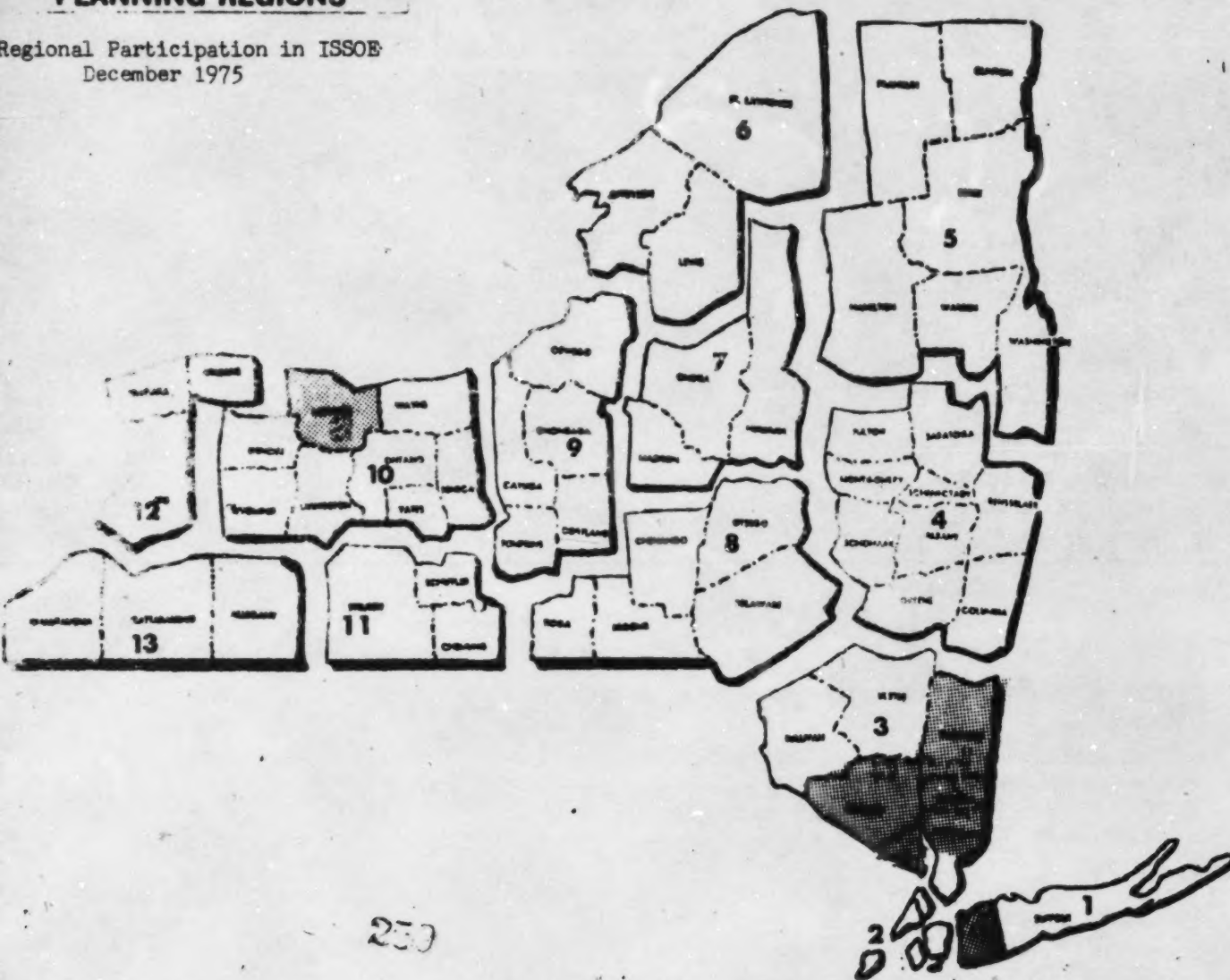
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APPENDIX M

MAPS 1, 2, 3

OCCUPATIONAL EDUCATION PLANNING REGIONS

Regional Participation in ISSOE
December 1975

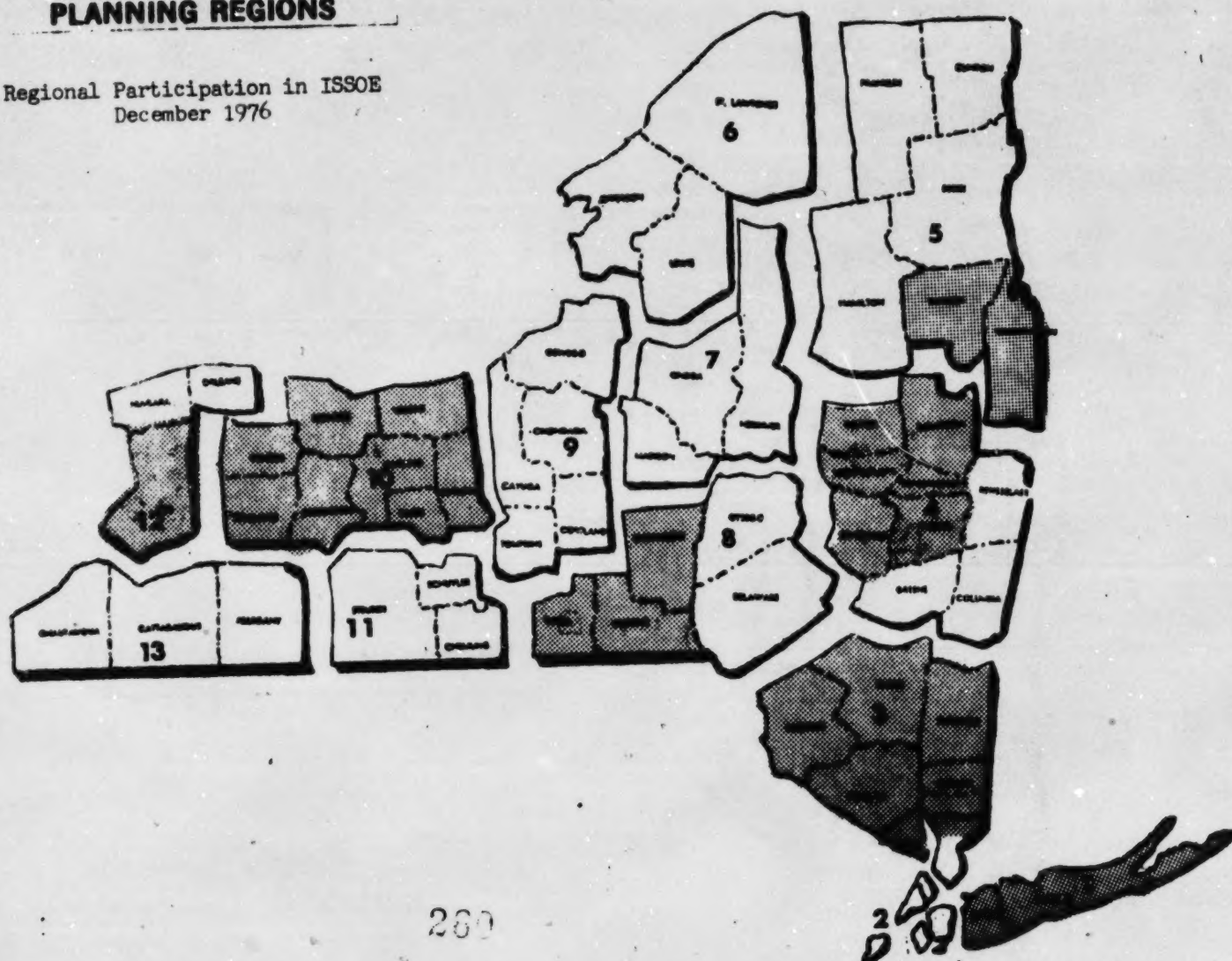


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OCCUPATIONAL EDUCATION PLANNING REGIONS

Regional Participation in ISSOE
December 1976



OCCUPATIONAL EDUCATION PLANNING REGIONS

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